The Surreal Mission

Tactical Nuclear Weapons, the British Army, and the Defence of the Central Front, 1945-1957

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Abstract

This thesis analyses the impact that tactical nuclear weapons had across the full spectrum of British defence policy-making between the years 1945-1957. It assesses the interactions between British defence policy and strategic planning; the roles of the British Army in national and alliance strategy; and Army preparations for nuclear combat. By making connections between these distinct, yet interrelated, elements of British defence planning the thesis provides new perspectives on British thinking about tactical nuclear weapons. The overarching thesis of this study is that the reluctance of British civilian defence policy-makers to engage in meaningful debate about the military utility of tactical nuclear weapons affected negatively the ability of the British Army to adapt to meet the new challenges of nuclear land combat. It is argued that for political and economic reasons the British government invested its resources into developing the strategic nuclear deterrent over all other military capabilities and that consequently the British Army was denied the political and financial support it needed to innovate in the tactical nuclear field. In the alliance context it is posited that civilian leaders acquiesced to American leadership on nuclear issues and accepted a policy of first use of tactical nuclear weapons to repel a Soviet invasion of Western Europe in order to enhance political cohesion within NATO, despite evidence that this was a flawed operational concept and without understanding the true ramifications of such a posture. It is maintained that a corollary of this was that the Army was forced to confront the challenges of preparing for nuclear land combat with little guidance or support from its political masters.

Contents

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There is an oft quoted maxim that behind every successful man stands a great woman. Although my success is yet to be defined there can be no doubting the great qualities that grace my partner, Jessica, who is an amazing woman, loving mother, and irreplaceable friend.

Abbreviations

AORG – Army Operational Research Group

APC – Armoured Personnel Carrier

APWPC – Army Post-War Plans Committee

BAOR – British Army of the Rhine

CAS – Chief of the Air Staff

CDC – Cabinet Defence Committee

CIGS – Chief of the Imperial General Staff

COS – Chiefs of Staff

COSC – Chiefs of Staff Committee

CPX – Command Post Exercise

DCIGS – Deputy Chief of the Imperial General Staff

DSACEUR – Deputy Supreme Allied Commander Europe

JIC – Joint Intelligence Committee

JPS – Joint Planning Staff

LTDP – Long Term Defence Programme

NAG – New Approach Group

NATO – North Atlantic Treaty Organization

NORTHAG – Northern Army Group

PRC – Policy Review Committee

RUSI – Royal United Services Institute

SACEUR – Supreme Allied Commander Europe

SACLANT – Supreme Allied Commander Atlantic

SEATO – Southeast Asia Treaty Organization

SHAPE – Supreme Headquarters Allied Powers Europe

Introduction

Instituting change in military organisations is extremely difficult, yet usually highly important. To remain effective, military forces have to identify, and adapt to, changes in the strategic environment in which they operate. Such changes may be brought about by technological innovations, political and social upheaval, or economic instability. In the years following the end of the Second World War, all of these factors played a role in transforming the strategic landscape in Britain: the advent of nuclear weapons presented a new and feared threat to British security; the ascendancy of a powerful Soviet Union marked the dawn of an uncertain bi-polar world; and British economic decline made the nation's position as an imperial power untenable, accelerating her retreat from Empire. For the British Army, these developments had ominous implications. Not only did the service have to manage its already substantial global security commitments, but it had to face the grim reality of a potential military confrontation with the Soviet Union, the armies of which were already, by the 1950s, firmly entrenched in Eastern Europe. To further complicate matters, Army planners were forced to assess the likely effects that the advent of nuclear weapons might have on operational planning. All the while, the Army had to maintain its political effectiveness in a hostile bureaucratic environment that challenged its institutional interests as it tried desperately to find a new *modus operandi* in an uncertain strategic environment.

Perhaps the most immediate concern confronting the British Army after 1945 was how the advent of nuclear weapons would affect the conduct of operations in a future land war. With a lack of precedent on which to base operational planning, the arrival of the atomic bomb into the armouries of the United States, and later the Soviet Union, presented something of a conundrum for Army leaders. Although relatively little was known on the detailed technical characteristics of the atomic bomb, it was clear that these new armaments would fundamentally and irrevocably change the way in which future wars would be fought. That is, if the Army

even had a role to perform in the nuclear era. Writing in 1945, in the shadow of the mushroom clouds that rose above the shattered cities of Hiroshima and Nagasaki, the British military theorist Stephen King-Hall observed that:

> Total war – large scale national war – is at an end. It has vanished from the sphere of practical politics…physical violence as a continuation of political purposes will be limited to riots and large scale police action…Total War has reached its ultimate and absolute physical development, it has made political and economic nationalism a meaningless thing and so Total War has abolished itself.[1]

There were some commentators, however, who maintained that atomic weapons would fail to have an immediate effect on the conduct of warfare because the manufacturing process was then extremely expensive and laborious, and they would still have to be delivered to the target by piston-engine heavy bombers of Second World War vintage that were vulnerable to interception.[2] Furthermore, some observers noted that Fat Man and Little Boy inflicted less damage than the conventional munitions that were dropped on the cities of Tokyo, Yokohama, and Dresden during the great air raids of the closing stages of the war.[3] Yet, the arrival of thermonuclear weapons (that, theoretically, have no upper limit on the size of their yield) in the middle 1950s, coupled with delivery vehicles that could detonate them anywhere in the world, suggested that a military and political revolution had taken place, and that the traditional concepts that had hitherto guided strategic and operational planning for conventional warfare were no longer relevant in the nuclear age.[4]

Thus, the British Army emerged from the high-intensity fighting of the Second World War into a rapidly and significantly changing military environment. Such was the unparalleled

[1] Stephen King-Hall, *Defence in the Nuclear Age* (London: Victor Gollancz Ltd., 1958), p. 11.
[2] For example, P. M. S. Blackett claimed in 1948 that 'a long-range atomic bombing offensive against a large continental Power is not likely to be by itself decisive within the next five years'. P. M. S. Blackett, *Military and Political Consequences of Atomic Energy* (London: Turnstile Press, 1948), p. 56.
[3] John Baylis, *Ambiguity and Deterrence: British Nuclear Strategy, 1945-1964* (Oxford: Clarendon Press, 1995), p. 35.
[4] For an overview of the problems facing conventional forces in the nuclear age see, Otto Heilbrunn, *Conventional Warfare in the Nuclear Age* (London: George Allen & Unwin Ltd., 1965) and Michael Carver, 'Conventional Warfare in the Nuclear Age' in Peter Paret (ed.), *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Oxford: Clarendon Press, 1986).

destructive power of nuclear weapons that the concept of a conventional land battle between industrialised nations now appeared to be an anachronism. Indeed, the continued relevance of ground forces of the type that had performed important combat functions during the wars of the early twentieth century were beginning to be called into question.[5] If the world's major military powers were ever again thrust into another global war, it might be that the theories of the inter-war airpower prophets such as Giulio Douhet, Billy Mitchell and Hugh Trenchard would finally be vindicated[6] – atomic airpower could prove decisive, deciding the outcome of the conflict in weeks, perhaps even days. As Beatrice Heuser has argued convincingly, nuclear strategy was the 'child' of air strategy in that the concepts governing their use were couched within the framework of conventional strategic bombing theory.[7] Although the dramatic and terrifying bolt from the blue of which the original airpower theorists had warned failed to materialise, with the advent of nuclear weapons after 1945 this now appeared a distinct reality. Such would be the human and material cost of such an attack that armed conflict between nuclear powers was increasingly seen to be politically unprofitable; deterrence, not defence, became the guiding strategic principle in this menacing new world.[8]

Britain was well attuned to these new developments, and by the end of the 1950s, had adopted a strategic posture of nuclear deterrence. The British decision to develop an independent nuclear deterrent in the years following the end of the Second World War has been

[5] In a contemporary article typical of those that challenged the utility of conventional forces in the nuclear age, the author claimed that 'ground forces are an anachronism arising from an effort to adapt armies to conditions they cannot cope with…in [thermonuclear] war, there is small place for armies and navies'. Thomas R. Phillips, 'The Atomic Revolution in Warfare', *Bulletin of the Atomic Scientists*, Vol. 10, No. 8 (October 1954), pp. 316-317.

[6] See, respectively, Giulio Douhet, *The Command of the Air*, trans. D. Ferrari (Washington, DC: Air Force History and Museums Programme, 1998); William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power – Economic and Military* (Tuscaloosa, AL: University of Alabama Press, 2009); Phillip S. Meilinger, 'Trenchard and 'Morale Bombing': The Evolution of Royal Air Force Doctrine Before World War II', *The Journal of Military History*, Vol. 60, No. 2 (April 1996), pp. 243-270.

[7] Beatrice Heuser, *The Evolution of Strategy: Thinking War from Antiquity to the Present* (Cambridge: Cambridge University Press, 2010), p. 356. Bernard Brodie also provides an excellent analysis of the relationship between nuclear strategy and strategic bombing theory in his *Strategy in the Missile Age* (Santa Monica, CA: The Rand Corporation, 1959), pp. 3-144.

[8] Baylis, *Ambiguity and Deterrence*, pp. 35-36.

well documented and needs no reiteration here.[9] What is clear in the British case, however, is that nuclear weapons were seen by the civilian leadership as being more than just modern military arms. For British decision makers, the possession of an independent nuclear deterrent offered a panacea to some of the political and economic dilemmas of the era. Specifically, a policy of nuclear deterrence would allow a reduction in expensive conventional forces that the nation could no longer afford. This thinking was revealed in the 1952 Global Strategy Paper, where the strategic doctrine of 'Massive Retaliation'[10] was placed at the cockpit of British defence policy. This logic was carried to its zenith with the publication of the Duncan Sandys Defence White Paper of 1957 where the utility of the Army was reduced radically at the expense of strategic nuclear forces, which were seen as the *sine qua non* of modern warfare. Consequently, by the end of the 1950s, Britain's nuclear strategy had evolved to reflect economic as well as military-strategic considerations, and conventional ground forces had become subservient to the strategic nuclear arsenals of Britain and her Atlantic partner, the United States.

Although strategic nuclear weapons took pride of place in British nuclear arsenals, by the beginning of the 1950s a variety of small yield nuclear weapons – so called tactical nuclear weapons[11] – were beginning to be made available to military planners. The weapons arrived with much conceptual baggage, however. Above all, there was confusion as to what constituted

[9] See, for example, Margaret Gowing, *Independence and Deterrence: Britain and Atomic Energy, 1945-1952*, Vols. 1 and 2 (London: Macmillan, 1974).

[10] 'Massive Retaliation' first entered the lexicon of strategic discourse in 1954 when the U.S. Secretary of State, John Foster Dulles, employed the term as a rhetorical catchphrase to describe a change in U.S. national security policy which emphasised the threat of massive nuclear retaliation to punish acts of aggression against the United States and her allies. Retrospectively, the term may be used to describe British nuclear doctrine as enunciated in the Global Strategy Paper of 1952. See, Samuel F. Wells, 'The Origins of Massive Retaliation', *Political Science Quarterly*, Vol. 96, No. 1 (Spring 1981), pp. 31-52.

[11] It is difficult to ascertain exactly when the term tactical nuclear weapon came into use. During the first years of the nuclear age, before the technological breakthroughs that would allow the development of small yield nuclear weapons, it had been common to refer not to the weapons themselves, but to the tactical *application* of nuclear weapons. It was not until 1953, with the arrival of the 280mm 'Atomic Annie' field gun to the European Central Front, that it became possible to refer to a 'tactical nuclear weapon' as a complete weapon system. For the technical characteristics of the atomic cannon see, David C. Elliot, 'Project Vista and Nuclear Weapons in Europe', *International Security*, Vol. 11, No. 1 (Summer 1986), p. 173.

a ‘tactical’ nuclear weapon. The seemingly academic desire to define nuclear weapons as being either ‘strategic’ or ‘tactical’ arose from the very real threat that the use of any nuclear weapon in warfare, however small the yield, would escalate out of control leading to a strategic nuclear exchange, with all the death and destruction that that would entail. These fears stemmed from the possibility that in a combat environment the distinction between the use of tactical and strategic nuclear weapons could become easily blurred leading to misunderstandings between the belligerents, miscalculation, and the prospect of unlimited escalation.[12] It was partly in consideration of the risks posed by nuclear escalation that the U.S. Joint Chiefs of Staff decided to refrain from the tactical use of nuclear weapons during the Korean War. Other considerations were of a political nature. The diplomatic furore that followed President Truman’s suggestion at a 1950 press conference that nuclear weapons might be employed on the Korean Peninsula suggested the emergence of a culture of nuclear taboo.[13]

Thus, the crux of the problem was, and still remains, the ambiguity of the term ‘tactical nuclear weapon’, an issue that continues to perplex researchers to this day. Indeed, since the development of small yield nuclear weapons, scholars have struggled to reach a consensus on what constitutes a ‘strategic’ or ‘tactical’ nuclear weapon.[14] Ultimately, the distinction between strategic and tactical nuclear weapons reflects the military definitions of a strategic mission on the one hand, and a tactical mission on the other. The Department of Defense *Dictionary of Military Terms* states that a strategic mission is:

> A mission directed against one or more of a selected series of enemy targets with the purpose of progressive destruction and disintegration of the enemy’s war making capacity and will to make war … As opposed to tactical operations, strategic operations

[12] Philip W. Dyer, ‘Will Tactical Nuclear Weapons Ever be Used?’, *Political Science Quarterly*, Vol. 88, No. 2 (June 1973), pp. 219-220. The seminal works on nuclear escalation are Herman Kahn, *On Escalation: Metaphors and Scenarios* (Washington, DC: Hudson Institute, 1965) and Bernard Brodie, *Escalation and the Nuclear Option* (Princeton, NJ: Princeton University Press, 1966).

[13] Nina Tannenwald, ‘The Nuclear Taboo: The United States and the Normative Basis of Nuclear Non-Use’, *International Organization*, Vol. 53, No. 3 (Summer 1999), pp. 443-451.

[14] Lawrence Freedman believes it is nonsensical to talk of ‘strategic’ and ‘tactical’ nuclear weapons since it is as difficult to imagine a non-tactical weapon as it is a non-strategic war. Lawrence Freedman, *The Evolution of Nuclear Strategy*, 3rd ed. (London: Palgrave Macmillan, 2003), pp. 117-118.

> are designed to have a long-range rather than immediate effect on the enemy and its military forces.[15]

In contrast, the definition of a tactical nuclear mission is:

> The use of nuclear weapons by land, sea, or air forces against opposing forces, supporting installations or facilities, in support of operations that contribute to the accomplishment of a military mission of limited scope, or in support of the military commander's scheme of manoeuvre, usually limited to the area of military operations.[16]

The Department of Defense distinguishes clearly tactical from strategic nuclear weapons by their intended use or mission.[17] However, some commentators prefer to define nuclear weapons by their observable capabilities; mainly their means of delivery vehicle or yield of warhead.[18] A succinct working definition of tactical nuclear weapons has been offered by Paul Schulte as being:

> Nuclear devices and delivery systems with relatively short range and low yield by contemporary standards, which are intended for employment against conventional, or nuclear, ground, naval, air targets or transport assets, on the battlefield, or across the theatre, to contribute to total conventional and nuclear campaign capability, yet which are not expected to inflict strategically decisive damage to enemy military, economic, or regime targets, but whose use would nevertheless be an unmistakable signal that the stakes in a crisis were regarded as serious enough to transform it into, or continue it, as a nuclear conflict, and so, unavoidably, to risk possible escalation to a strategic level.[19]

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[15] Joint Chiefs of Staff, *Dictionary of Military and Associated Terms* (Washington, DC: Department of Defense, 2008), p. 523.
[16] Ibid., p. 541.
[17] William Van Cleave points out weaknesses and ambiguities in the Department of Defense definition of strategic and tactical missions. He claims that the definition of a strategic mission rules out both immediate effects and limited strategic operations while the language used in the definition of a tactical mission – 'supporting' and 'usually' – broadens it too much. He goes on to say that certain weapon systems such as ICBMs and B52 bombers may, theoretically, be employed within the definition of tactical nuclear weapon employment, whilst atomic artillery and atomic demolition munitions could be used within the strategic mission definition. William Van Cleave and S. T. Cohen, *Tactical Nuclear Weapons: An Examination of the Issues* (New York, NY: Macdonald and Jane's, 1978), pp. 13-14.
[18] Even classifying nuclear weapons on the size of its yield can be misleading. As Nigel Calder observes, even 'modest' battlefield nuclear weapons which are designed to be used against tanks and airfields can be employed equally as well against cities – the traditional target for strategic nuclear weapons. Calder cited in Dietrich Schroeer, *Science, Technology and the Nuclear Arms Race* (New York, NY: John Wiley & Sons, 1984), pp. 293-294.
[19] Paul Schulte, 'Tactical Nuclear Weapons in NATO and Beyond: A Historical and Thematic Examination' in Tom Nichols, Douglas Stuart, and Jeffery D. McCausland (Eds.), *Tactical Nuclear Weapons and NATO* (Carlisle, PA: Strategic Studies Institute, 2012), p. 15.

Schulte's definition reflects the all-encompassing nature of tactical nuclear weapons. He describes both their military utility in contributing to overall campaign capabilities and to their political use as escalatory weapons to indicate changes in the strategic stakes of maintaining hostilities. That tactical nuclear weapons straddled both the military and political spheres of defence policy is reflected in this thesis; each side of the tactical nuclear coin has to be assessed in order to reach a full understanding of how those weapons influenced national military organisations.

This thesis analyses the impact that tactical nuclear weapons had across the full spectrum of British defence policy-making between the years 1945-1957. It assesses the interactions between British defence policy and strategic planning; the roles of the British Army in national and alliance strategy; and Army preparations for nuclear combat. Our understanding of each of these aspects in isolation is fairly well developed. However, there is yet to be found a comprehensive study on how each of these elements interacted. Nor is there a sufficient examination of the issues surrounding tactical nuclear weapons from a British perspective. These are two matters which this thesis seeks to address. By making connections between these distinct, yet interrelated, elements of British defence planning the thesis seeks to provide new perspectives on British thinking about tactical nuclear weapons while at the same time providing insights in to how civilian and military appreciations of the strategic environment influenced one another and the effects that this had on broader defence policy during the late 1940s and 1950s from both a national and alliance perspective.

The overarching thesis of this study is that the reluctance of British civilian defence policy-makers to engage in meaningful debate about the military utility of tactical nuclear weapons affected negatively the ability of the British Army to adapt to meet the new challenges of nuclear land combat. It is argued that for political and economic reasons the British government invested its resources into developing the strategic nuclear deterrent over all other military

capabilities and that consequently the British Army was denied the political and financial support it needed to innovate in the tactical nuclear field. In the alliance context it is posited that civilian leaders acquiesced to American leadership on nuclear issues and accepted a policy of first use of tactical nuclear weapons to repel a Soviet invasion of Western Europe in order to enhance political cohesion within NATO, despite evidence that this was a flawed operational concept and without understanding the true ramifications of such a posture. It is maintained that a corollary of this – supporting NATO's military rationales for the deployment of tactical nuclear weapons but at the same time rejecting the concept of a tactical nuclear war as being anathema to British strategic preferences – was that the Army was forced to confront the challenges of preparing for nuclear land combat with little guidance or support from its political masters. It is argued that as a result of this the Army was unable to produce the types of weapons and equipment it believed were necessary to fight a tactical nuclear war but that it was successful in adapting intellectually and organisationally through the development of new doctrine, tactical concepts, and force structures.

The timeframe 1945-1957 has been chosen since this was the period that witnessed the most profound changes in British strategic thinking as the nation was thrust uncertainly into the nuclear age after a devastating world war fought with conventional armaments. It is also the decade which saw the birth of NATO, a truly unique peacetime military alliance unprecedented in history. 1957 is a suitable end point for this study since the publication of the defence White Paper of that year brought together the key British ideas about defence in the nuclear age that had culminated since 1945. The British Army, and not the Royal Navy or Royal Air Force, has been chosen as the subject of this study because this was the service which arguably faced the most difficult challenges preparing for the nuclear battlefield in terms of organisational and doctrinal adaptation.

Sources

This thesis both re-examines established primary sources and brings to light some new material that has been overlooked by historians. It utilises a wide range of primary material such as official government papers, professional military journals, personal papers and unpublished typescripts, and memoirs. The official documents relating to Britain's nuclear weapons policies and military strategy in the years after the end of the Second World War are held by the National Archives of the United Kingdom. The records of the Chiefs of Staff Committee, the Joint Planning Staff, the Cabinet Defence Committee, the Foreign Office, and the Treasury provide insight into the military, political, and fiscal dimensions of British defence policy after 1945. The records of the respective service staffs, in particular the papers of the Chief of the Imperial General Staff and the Army Council, have also been consulted for they shed some light on the bureaucratic and inter-service rivalries of the period, an important facet of the politics of British post-war defence planning. The defence White Papers of the 1950s have also proved useful for they were crafted by the Chiefs of Staff and senior ministers habitually throughout the decade and, therefore, present a snapshot of the compromise strategic solutions and bargaining that took place between political and military leaders at the onset of the Cold War.

In addition to these records, many of which have been used extensively by scholars working in the field, this thesis draws on a number of hitherto neglected series of official records. Foremost, the papers of the Army Operational Research Group contain a wealth of sources relating to the Army and the atomic battlefield of the 1950s. The files contain reports relating to Army war-games and a myriad other studies that were commission by the War Office during this period to explore the potentialities, and limitations, of tactical nuclear weapon use. Another series of papers that shine some light on the Army's relationship with tactical nuclear weapons are the records of the Directorate of Military Training. As the title suggests, these files relate

to the training of troops within the Army as well as reports from military exercises and manoeuvres. Of particular interest are the documents pertaining to the large-scale NATO exercises of the 1950s such as BATTLE ROYAL. An examination of the reports from these exercises highlights some of the dilemmas and contradictions that arose from planning for tactical nuclear war in Europe.

Another source of information which has generally been disregarded by historians of the post-war British Army is the NATO archive, located at the Alliance headquarters in Brussels, Belgium. This extensive collection covers many aspects of NATO military planning during the early years of the Alliance. The most important collection for high-level defence debate is the records of the North Atlantic Council. Here can be found reports of multi-lateral defence discussions between the different ministers and military chiefs of the member nations. On the military dimension of strategic planning the records of the Military Committee provide a detailed account of how the development of strategic concepts were approached and executed on a multi-national level. The most important documents outlining the strategic appreciations of the Alliance can be found in the files of the Military Committee. As of 2014, the records of the work produced by Supreme Headquarters Allied Powers Europe remain classified to the public. However, in December 2012, NATO released the official histories of that command which provides a unique insight into the full spectrum of important work carried out by the Supreme Commander and his staff.

As well as official national and alliance government documents, a rich seam of information can be found in the numerous articles that began to proliferate in professional military journals during the 1950s. Publications such as *Army Quarterly*, *British Army Review*, and *The RUSI Journal* contain a wealth of articles that relate to the nuclear battlefield of the 1950s, so too do the branch-specific service periodicals, *Journal of the Royal Artillery*, *Royal Engineers*

Journal, and the *Royal Armoured Corps Journal*.[20] Professional journals are a useful source for a study of this type since they provide an insight into the opinions and beliefs of military practitioners. This is particularly relevant when considering the emergence of new and untested weapon systems such as tactical nuclear weapons. Professional service journals provided a platform for serving officers to discuss the changing character of warfare and the type of tactics, doctrine, and organisations that would be required to be able to fight and prevail in atomic land combat. Yet, as a primary source, the journals have to be approached with care. Understandably, career officers and professional soldiers possessed a vested interest in 'proving' that they could adapt in the nuclear age, and many soldiers provided theories on how their service could exploit the benefits of nuclear weapons but avoid their effects. As a result, many of the articles are polemic in tone with the overarching aim of justifying the continued relevance of conventional ground forces in an age of nuclear plenty. Nonetheless, the journals offer a revealing insight into an officer corps that was struggling to come to terms with the nuclear revolution and the future role of conventional ground forces.

A greater understanding of how military professionals understood the nuclear revolution can be gleaned from private papers and unpublished typescripts. The Liddell Hart Centre for Military Archives, King's College London, holds a number of collections of private papers from prominent military theorists, defence commentators, and practitioners of warfare such as Sir Basil Liddell Hart and Sir Harold Pyman. The papers are rich and varied and include private correspondence between friends and colleagues, draft speeches and articles intended for newspapers and conferences, diary entries, and letters to the press. These often candid writings provide a rich source of information on how contemporary defence analysts understood the nuclear revolution and the changing strategic environment. The personal papers of senior

[20] There are, in addition, a number of articles in American service journals such as *Military Review* and *The Army Combat Forces Journal* as well as the more technical publication, *The Bulletin of the Atomic Scientists*.

British Army officers have also been consulted, such as the papers of Lieutenant General Sir Giffard Martel and Field Marshal Bernard L. Montgomery, which are held by the National Army Museum and the Imperial War Museum, respectively. The memoirs of key British officials are available and have been used, where appropriate, as a supplementary source.

In addition to these sources, the late 1940s and 1950s witnessed a proliferation of writings on British nuclear weapons policy and strategic planning more generally. Indeed, the 1950s provided many basic ideas on military strategy in the nuclear age. For example, the concept of 'Massive Retaliation' – which featured prominently in British strategic assessments throughout the 1950s – stemmed from the writings of Marshall of the Royal Air Force, Sir John Slessor, who published his seminal work on the subject, *Strategy for the West*, shortly after his retirement in 1954.[21] Other British military theorists such as Sir Basil Liddell Hart, P. M. S. Blackett, E. J. Kingston-McCloughry, and Stephen King-Hall also made significant contributions to the strategic debates of the early post-war period.[22] There are, in addition, a number of studies dating from this period dedicated to the examination of tactical nuclear weapon use. Most of this work originated in the United States and range from technical studies produced for the professional military audience to those aimed at the policy-making community.[23] This literature has been employed as primary source material in this thesis since

[21] John Slessor, *Strategy for the West* (London: Cassell, 1954). Slessor developed his ideas further in *The Great Deterrent* (London: Cassell, 1957).

[22] See, Basil Liddell Hart, *Defence of the West* (London: Cassell, 1950), idem, *Deterrent or Defence: A Fresh Look at the West's Military Position* (London: Stevens and Sons Ltd., 1960); Blackett, *Military and Political Consequences of Atomic Energy*, idem, *Atomic Weapons and East-West Relations* (Cambridge: Cambridge University Press, 1956), idem, *Studies of War: Nuclear and Conventional* (Edinburgh and London: Oliver and Boyd, 1962); E. J. Kingston-McCloughry, *The Direction of War* (London: Jonathan Cape, 1955), idem, *Global Strategy* (London: Jonathan Cape, 1957); Stephen King-Hall, *Defence in the Nuclear Age* (London: Victor Gollancz, 1958).

[23] The first detailed examination by military practitioners on the tactical application of nuclear weapons was George Reinhardt and William Kintner's, *Atomic Weapons in Land Combat* (Harrisburg, PA: The Military Service Publishing Company, 1953). This was followed by Theodore Mataxis and Seymour Goldberg's, *Nuclear Tactics, Weapons and Firepower in the Pentomic Division, Battle Group and Company* (Harrisburg, PA: The Military Service Publishing Company, 1958). A more theoretical study of tactical nuclear weapons can be found in F. O. Miksche, *Atomic Weapons and Armies* (London: Faber and Faber Ltd., 1955). For an analysis of the role played by tactical nuclear weapons in foreign relations see William W. Kaufmann (Ed.), *Military Policy and National Security* (Princeton, NJ: Princeton University Press, 1956) and Henry Kissinger's highly influential *Nuclear Weapons and Foreign Policy* (New York, NY: Harper, 1957).

they provide insights into the strategic thoughts of key military and civilian personnel who were instrumental in shaping British strategic doctrine during this period.

Literature Review

Through an analysis of the post-war British Army's experiences in preparing for the nuclear battlefield, this thesis unites two distinct strands of literature that deal respectively with: the history of the British Army and British defence policy after 1945. The literature on the history of the post-war British Army and British nuclear strategy should, in theory, offer some insights into the Army's experiences in developing tactical nuclear capabilities during the 1950s. Yet, this is not the case. General histories of the British Army have tended to overlook the activities of the service in the first two decades after the end of the Second World War. What little attention the post-war Army does receive in the literature is overwhelmingly focused on the service's counter-insurgency operations. This thesis seeks to remedy this deficiency by providing a comprehensive examination of the experiences of the British Army of the Rhine in preparing for nuclear land combat. Likewise, there is a dearth of studies concerning the role of tactical nuclear weapons within the literature on British defence policy. While the development of the independent nuclear deterrent is well understood, comparatively little is known about the issues that surrounded tactical nuclear weapons in Britain during the 1950s. Through a detailed analysis of British thinking about tactical nuclear weapons, this thesis provides a new look at how nuclear weapons were perceived by British defence policy-makers and practitioners.

The Post-war British Army

General histories of the post-war British Army have largely failed to take into account the service's preparations during the 1950s to fight a high intensity land war against the Soviet

Union in Europe. This is somewhat puzzling since such a campaign was one of the Army's most significant missions in the immediate post-war years and, accordingly, occupied the minds of some of the brightest military theorists throughout the late 1940s and 1950s. Yet, much of the literature on the post-war Army is located in the realm of the service's counter-insurgency operations. Perhaps, as David French suggests, it was the allure of the elite SAS or the exotic Gurkha regiments that attracted historians to focus their attentions on the Army's small wars instead of its preparations to fight the Red Army in Central Europe, or that it might be because the British Army of the Rhine never embarked upon the war for which it prepared, denying historians the promise of a dramatic or glamorous narrative.[24] Whatever the reason, the British Army's role as a conventional deterrent, or if deterrence broke down, as a fighting force to confront Soviet land forces along the intra-German border, is underrepresented in the general histories of the Army after 1945.

Historians of the post-war British Army have traditionally focused their attention on explaining the paradox of why the service was able to develop a first rate counter-insurgency doctrine after 1945 yet lacked an adequate doctrine for conventional war-fighting operations during the same period. On the latter point, the general consensus among historians of the British Army is that its doctrine for conventional warfare stagnated after the end of the Second World War as a result of institutional resistance to change.[25] Some historians argue that this remained the case until tactical nuclear weapons imposed the requirement for major

[24] See, for example, Chris Bellamy, *The Gurkhas: Special Force* (London: John Murray, 2011); Tim Jones, *SAS: The First Secret Wars: The Unknown Years of Combat and Counter-insurgency* (London: I. B. Tauris, 2005), idem, *Postwar Counterinsurgency and the SAS 1945-1952: A Special Type of Warfare* (London: Frank Cass, 2001); Raffi Gregorian, *The British Army, the Gurkhas and Cold War Strategy in the Far East, 1947-1954* (London: Macmillan, 2002).

[25] Allan Mallinson, *The Making of the British Army* (London: Bantam Press, 2009), pp. 384, 407; Paul Cornish, *British Military Planning for the Defence of Germany, 1945-50* (London: Macmillan, 1996); Correlli Barnett, *Britain and Her Army, 1509-1970: A Military, Political, and Social Survey* (London: Penguin, 1970), p. 490; Gregory Blaxland, *The Regiments Depart: A History of the British Army, 1945-1970* (London: William Kimber, 1971), p. 341.

innovations in thought in the middle 1950s,[26] while others have insisted that the Army did not jolt itself out of doctrinal complacency until the reforms of Sir Nigel Bagnall during the 1980s.[27] In contrast, historians agree that the British Army was successful in developing an effective counter-insurgency doctrine that allowed it to project its forces overseas to combat guerrilla fighters in locations as diverse as Malaya, Kenya, the Suez Canal Zone, and Cyprus.[28] While some scholars disagree on the underlying principles that made this counter-insurgency doctrine such a success,[29] the post-war British Army is widely accredited with developing a first rate model for counter-insurgency operations.

What has escaped the attention of historians, however, is how the British Army approached the challenges of planning for a war against a nuclear-armed enemy in Europe, which was a theatre of vital importance. It is clear, from even a cursory glance at the documents now available, that the Army officer corps was forward thinking, receptive, and eager to explore the potentialities of nuclear power in order to overcome the military challenges of the period. This is a world away from the 'stagnant' military thought that is often associated with the post-war British Army. Indeed, it is an anomaly that scholars have sought to document the achievements of the Army in developing a world class counter-insurgency doctrine during the 1950s without recognising the same intellectual effort that went into the development of ground forces for nuclear combat during the same period. This is a gap that this thesis hopes to fills. By illustrating that the Army was committed to solving the conceptual problems of how to fight a nuclear land war against the Soviet Union in Europe, it thus becomes clear that the service was

[26] Alun Gwynne Jones, 'Training and Doctrine in the British Army since 1945' in Michael Howard (Ed.), *The Theory and Practice of War* (London and Bloomington, IN: Indiana University Press, 1975), pp. 313-21.
[27] John Kiszely, 'The British Army and Approaches to Warfare since 1945', *Journal of Strategic Studies*, Vol. 19, No. 4 (1996), pp. 179-206.
[28] Michael Dewar, *Brush Fire Wars: Minor Campaigns of the British Army since 1945* (London: Robert Hale, 1984); Thomas R. Mockaitis, *British Counterinsurgency, 1919-60* (London: Macmillan, 1990), idem, *British Counter Insurgency in the Post-Imperial Era* (London: Macmillan, 1995); John A. Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam* (Chicago: University of Chicago Press, 2005).
[29] See the arguments of David French in, *The British Way in Counter-insurgency, 1945-67* (Oxford: Oxford University Press, 2011).

willing to instigate major changes in its doctrine and force structures to adapt to the changing character of land warfare.

Not all accounts of the post-war Army have overlooked the service's experiences in developing ground forces for nuclear war. For example, Gregory Blaxland has produced a history of the Army which is not entirely dominated by narratives of counter-insurgency operations.[30] Similarly, Colin McInnes and Alun Gwynne Jones have each written chapter-length essays examining the service's attempts to come to terms with the Soviet threat and the future nuclear battlefield.[31] Yet, these studies were extremely limited in scope since the authors were unable to access many of the documents which have since become available. The result was a broad and general analysis of the military challenges facing the British land forces during the 1950s that leaves many key questions unanswered, and unexplained. Recent writers have also claimed that a dearth of primary source material presents barriers to fully understanding the activities of the British Army of the Rhine during the 1950s. For example, prefacing his short chapter on operational war plans in BAOR, Robert Evans claimed with some accuracy that many documents have not survived because of the British security system's penchant for the habitual liquidation of outmoded operational plans.[32] However, had he delved a little deeper he would have found a number of documents relating to BAOR's thinking at the operational level of war within the records of the British Army's Directorate of Military Training and the Army Operational Research Group.

David French sought to remedy these shortfalls in his assessment of the nuclear aspects of the post-war British Army in his recent monograph. Two chapters assigned to examining the

[30] Blaxland, *The Regiments Depart*.
[31] Colin McInnes, *Hot War, Cold War: The British Army's Way in Warfare, 1945-95* (London and Washington, DC: Brassey's, 1996); Jones, 'Training and Doctrine in the British Army since 1945', pp. 313-33. In contrast, there is but one solitary paragraph on the nuclear doctrine of the British Army of the Rhine in *The Oxford History of the British Army*. See, Anthony Farrar-Hockley, 'The Post-War Army, 1945-1963' in David G. Chandler and Ian Beckett (Eds.), *The Oxford History of the British Army* (Oxford: Oxford University Press, 1996), p. 337.
[32] Robert Evans, 'The British Army of the Rhine and Defense Plans for Germany, 1945-1955' in Jan Hoffenaar and Dieter Krüger (Eds.), *Blueprints for Battle: Planning for War in Central Europe, 1948-1968* (Lexington, KY: University Press of Kentucky, 2012), pp. 203-215.

British Army of the Rhine provided valuable insights into the evolution of British thinking about tactical nuclear weapons in the context of a nuclear land war against the Red Army in Central Europe. One chapter explored the evolution of BAOR's nuclear war-fighting doctrine whilst another assessed how successful the organisation was in turning that doctrine into reality through organisational change.[33] French utilised never before used sources for his assessment and brought to light new perspectives on the experiences of the British Army in the nuclear era. However, he focuses more on developments in the 1960s, when BAOR nuclear doctrine was at its most mature. This thesis builds upon that analysis in greater detail but emphasises the experiences of the early post-war years – that critical juncture where thinking about the nuclear battlefield gradually supplanted thinking of a conventional nature.

Although the Army's preparations to fight a nuclear land war during the 1950s have eluded the attention of the many historians, there has been greater effort directed towards examining the service within the broader framework of British defence policy after 1945. Authors such as R. N. Rosecrance, Christopher J. Bartlett, Phillip Darby, and Julian Lewis have each produced studies that analysed British military capabilities in the changing strategic environment of the post-war world.[34] Here, the Army is placed within the wider international context of British imperial decline and strategic readjustment after 1945 where it is often portrayed, predictably, as a military dinosaur trapped in global war thinking and unable to respond effectively to the changing strategic environment. For example, events in Suez during 1956 have often been cited as evidence of the Army's diminished war-fighting capabilities during this period.[35] Yet, at the same time that Operation Musketeer was exposing Britain's conventional weaknesses to the

[33] David French, *Army, Empire, and Cold War: The British Army and Military Policy, 1945-1971* (Oxford: Oxford University Press, 2012), pp. 198-241.
[34] R. N. Rosecrance, *Defense of the Realm: British Strategy in the Nuclear Epoch* (London: Columbia University Press, 1968); Christopher J. Bartlett, *The Long Retreat: A Short History of British Defence Policy, 1945-1970* (London: Macmillan, 1972); Phillip Darby, *British Defence Policy East of Suez, 1947-1968* (London: Oxford University Press, 1973); Julian Lewis, *Changing Direction: British Military Planning for Post-war Strategic Defence, 1942-1947*, 2nd ed. (London and Portland, OR: Frank Cass, 2003).
[35] See, Darby, *British Defence Policy East of Suez*, pp. 97-100 and McInnes, *Hot War, Cold War*, p. 10.

world, the British Army of the Rhine continued to grapple with some of the most challenging military dilemmas of the post-war world. Deployed as it was on the front line of the Cold War in Europe, commanders of the Rhine Army were occupied with the Herculean task of developing a fighting force that would be capable of confronting the Red Army on the nuclear battlefields of Europe if deterrence broke down. Despite this, the Army's performance during the Suez debacle, an event that marked the end of Britain as a major world power, has sadly remained one of the lasting legacies of the service from the 1950s.

The failure of the Suez campaign was not entirely the fault of the military, as a number of political and economic factors converged to hinder the ability of the armed forces to project effectively its power overseas. This highlights the fact that the Army was often constrained by the civilian leadership in the immediate post-war years as successive Conservative governments attempted to harmonise defence commitments and capabilities with shrinking defence budgets.[36] This bureaucratic environment created a domestic setting that was conducive to inter-service competition for resources, and the Army's rivalry with the Royal Air Force and Royal Navy to secure sufficient levels of funding from the civilian leadership has been well documented.[37] While some authors may disagree on how inter-service rivalry affected British defence policy, it is clear, nonetheless, that the hostile domestic setting in which Army planners had to operate during the 1950s had a major impact on strategic planning within the service.[38] This is reflected by the Army's struggle to retain a sufficient level of

[36] Andrew Dorman, 'Crises and Reviews in British Defence Policy' in Stuart Croft et al., *Britain and Defence, 1945-2000: A Policy Re-evaluation* (Harlow: Longman, 2001).
[37] See, for example, Michael Howard, 'Civil-Military Relations in Great Britain and the United States, 1945-1958', *Political Science Quarterly*, Vol. 75, No. 1 (March 1960), pp. 35-46 and Laurence W. Martin, 'The Market for Strategic Ideas in Britain: The Sandys Era', *The American Political Science Review*, Vol. 56, No. 1 (March 1962), pp. 23-41.
[38] For instance, William P. Snyder argues that a healthy rivalry between separate services improves the quality of defence policy by injecting into the decision-making process a degree of competition and diversity. In contrast, Philip Williams claims that inter-service rivalry encourages a disaggregated approach to military planning that can have a negative effect on national security policy. William P. Snyder, *The Politics of British Defence Policy, 1945-1962* (Columbus, OH: Ohio State University Press, 1964), p. 175 and Philip Williams, 'United States of America' in G. M. Dillon (Ed.), *Defence Policy Making: A Comparative Analysis* (Leicester: Leicester University Press, 1988), pp. 64-65.

manpower to satisfy its worldwide security commitments, a problem which was exacerbated by the decision to terminate National Service by the civilian leadership, largely for political reasons.[39]

Thus, there has been some progress in the analysis of British inter-service and civil-military relationships during the 1950s, which is an essential prerequisite to understanding how effective the British Army was in communicating its strategic preferences to the wider defence community during this period. What has remained unexplored, however, is how inter-service rivalry influenced Army thinking about the development of tactical nuclear capabilities. Moreover, the ways in which civilian intervention into the military decision-making process affected the ability of the Army to plan and develop suitable forces for tactical nuclear warfare remains uncharted waters. This thesis acknowledges these gaps within the historiography of the post-war British Army and provides a detailed examination of how the politics of defence policy-making can influence how successful a military organisation is in developing capabilities that are both novel and unfamiliar, but potentially highly important.

British Nuclear Weapons Policy

As opposed to strategic nuclear weapons, which are well understood and have a wealth of literature dedicated to their analysis, tactical nuclear weapons are underrepresented in the mainstream literature. There have been some attempts, in the sixty years since battlefield nuclear weapons first entered the armouries of the superpowers, to examine the issues surrounding tactical nuclear warfare, but these studies have been overwhelmingly focused on the American dimension, with nothing comparable on British thinking about tactical nuclear

[39] Trevor Royle, *The Best Years of their Lives: The National Service Experience 1945-63* (London: Michael Joseph, 1986); Martin S. Navias, 'Terminating Conscription? The British National Service Controversy 1955-56', *Journal of Contemporary History*, Vol. 24, No. 2 (1989), pp. 195-208; Tom Hickman, *The Call-Up: A History of National Service* (London: Headline, 2004).

weapons.[40] Rather, studies of British nuclear weapons policy have tended to focus on the development of the nation's independent strategic nuclear deterrent. Although British forces on the Continent played an important role as a supplement to the strategic nuclear deterrent, and were equipped and trained, since the beginning of the 1950s, to fight in a nuclear environment, still relatively little is known about British thinking on the military uses of tactical nuclear weapons.

The existing literature on British nuclear weapons policy can be grouped broadly into two main categories – those that deal with the political dimensions of nuclear weapons and those that are concerned with military-strategic factors. The former is reflected in the work of Margaret Gowing, Andrew Pierre, A. J. R. Groom, and G. M. Dillon.[41] All of these studies are couched in the political rationales behind the British decision to develop an independent nuclear deterrent in the years after 1945. For these authors, the British nuclear weapons project was inextricably linked with the changing political environment facing decision makers in the late 1940s and early 1950s. It is claimed that the British nuclear weapons programme was born out of a desire by British governments to appear modern, powerful, and influential in light of the nation's perceived loss of prestige after the end of the Second World War. As Pierre proposes, 'in the case of Britain, the creation and continuation of an independent nuclear force can best be understood in the context of a once Great Power in decline, attempting to adjust to reduced circumstances'.[42] In addition to linking the nuclear deterrent to concepts of prestige

[40] Some of the most recent examples being Kenneth J. Comfort, *National Security Policy and the Development of Tactical Nuclear Weapons: 1948-1958* (Cohoes, NY: Public Administration Institute of New York State, 2005); Robert T. Davies, *The Challenge of Adaptation: The U.S. Army in the Aftermath of Conflict, 1953-2000* (Kansas, MO: Combat Studies Institute, 2008); Ingo Wolfgang Trauschweizer, *Nuclear Weapons and Limited War: The U.S. Army in the 1950s* (Florence: European University Institute, 2009). The seminal work on the experiences of the U.S. Army in developing nuclear capabilities remains Andrew J. Bacevich's, *The Pentomic Era: The U.S. Army Between Korea and Vietnam* (Washington, DC: National Defense University Press, 1986).

[41] Margaret Gowing, *Britain and Atomic Energy, 1939-45* (London: Macmillan, 1964), idem, *Independence and Deterrence*; Andrew J. Pierre, *Nuclear Politics: The British Experience with an Independent Strategic Force 1939-1970* (London: Oxford University Press, 1972); A. J. R. Groom, *British Thinking about Nuclear Weapons* (London: Francis Pinter, 1974); G. M. Dillon, *Dependence and Deterrence: Success and Civility in the Anglo-American Special Nuclear Relationship, 1961-1982* (Aldershot: Gower, 1983).

[42] Pierre, *Nuclear Politics*, p. 303.

and national pride, a common theme amongst these studies is that nuclear weapons were developed by Britain to allow greater political leverage over both friend and foe, especially in the context of the 'special' relationship with the United States, which received particular attention by Dillon.

A problem common to these particular studies, however, is that issues surrounding the development and deployment of tactical nuclear weapons have been overlooked. Emphasis has been placed on the political rationales behind the decision to develop an independent strategic nuclear deterrent, and British thinking about the uses of tactical nuclear weapons in a combat role has largely been omitted. In part this reflects the types of sources then available. Except for Gowing, who as the official historian of the British nuclear weapons programme was granted access to many classified documents, historians of British nuclear weapons policy were working with a limited source base during the 1970s and early 1980s. For example, the papers of the major service ministries and defence committees were unavailable to the majority of researchers, so empirical information relating to British nuclear weapons policy during the 1950s often had to be extracted from pseudo-official statements made in the public arena. While this approach provides some interesting insights into public discourse on nuclear weapons, the official views of the military are left wanting. The result is that Army thinking about the possible military uses of atomic power remained largely unknown at the writing of these early studies.

Some of these shortcomings were addressed by the subsequent generation of scholars of British nuclear weapons policy in that they focused to a greater degree on the military and strategic dimensions underlying British nuclear weapons policy during the 1950s. Historians such as Ian Clark, Nicholas J. Wheeler, Martin S. Navias, John Baylis, and Alan Macmillan[43]

[43] Ian Clark and Nicholas J. Wheeler, *The British Origins of Nuclear Strategy, 1945-1955* (Oxford: Clarendon Press, 1989); Martin S. Navias, 'Strengthening the Deterrent? The British Medium Bomber Force Debate, 1955-56', *Journal of Strategic Studies*, Vol. 11, No. 2 (1988), pp. 203-219, idem, *Nuclear Weapons and British Strategic Planning, 1955-1958* (Oxford: Clarendon Press, 1991); Baylis, *Ambiguity and Deterrence*; John Baylis and Alan

eschewed some of the previous interpretations of British nuclear weapons policy and opted instead in their work to define more clearly British thinking about nuclear strategy. As opposed to the more traditional analyses of British nuclear weapons policy, the starting point for many of these studies was that the origins of British nuclear strategy was not simply a reflection of the nation's political and economic decline, but was rooted in the unique strategic predicament that faced British decision-makers after 1945. This revisionist account of British nuclear weapons policy was made possible by the opening up, in the late 1980s and early 1990s, of the archives relating to British nuclear weapons policy. Greater access to the files of the Chiefs of Staff Committee, the Joint Planning Staff, and the Cabinet Defence Committee, in particular, allowed new insights into the military dimensions of British nuclear weapons policy. The result was a great deepening of our understanding of strategic planning in Britain at the onset of the Cold War.

A welcome development from this approach was that the significance of the internal Whitehall battles between the military and the political leadership was more clearly exposed than hitherto. What comes to the fore was that strategic planning in Britain was retarded by the inability of key military and civilian decision makers to agree on what the best strategy was for Britain in the nuclear age: Governments stressed a strategy of nuclear deterrence to discourage Soviet adventurism in Europe and Asia, while the Army, Royal Navy and Royal Air Force each argued for a particular strategy that reflected individual service specialities and strategic preferences. The disjointed approach to defence planning during the 1950s meant that British nuclear strategy was often ambiguous, and even, at times, contradictory.[44] This appears to be consistent with David French's argument that compromise in defence policy, as a result of discordant strategic ideas, has been a primary characteristic of British strategic culture since as

Macmillan, 'The British Global Strategy Paper of 1952', *Journal of Strategic Studies*, Vol. 16, No. 2 (1993), pp. 200-226, idem, *A Reassessment of the British Global Strategy Paper of 1952*, International Politics Research Papers 13 (Dept. of International Politics, University of Wales, Aberystwyth, 1993).

[44] Baylis, *Ambiguity and Deterrence*, pp. 359-360.

far back as 1688.[45] By emphasising the competitive elements of British strategic planning in the 1950s, revisionist scholars of British nuclear weapons policy have been able to frame the debates on the future of the nation's nuclear forces within the wider context of British strategic culture. In turn, the role played by the Army within these debates provides some insights into how effective the service was in communicating its strategic preferences to the wider defence community.

Although the Army's contribution to the nuclear debates of the 1950s receives greater attention than previous studies on the evolution of British nuclear strategy, there still remains a distinct lack of interest in the Army's experience with developing tactical nuclear capabilities during this period.[46] The manner in which the Army's relationship with tactical nuclear weapons is approached is fairly typical of most studies that are concerned primarily with the strategic nuclear deterrent. The service's interest in acquiring small yield nuclear weapons is mentioned, but the analysis tends to glide over the subject without really delving into its intricacies. There are veiled comments, for example, that the Army participated in various war games and military manoeuvres to test the operational effectiveness of tactical nuclear weapons or that the Army expended a great deal of effort in developing new organisations and tactical doctrine for use on the atomic battlefield. Yet, the analysis rarely goes beyond this and has a tendency to focus instead on government perspectives on the political utility of tactical nuclear weapons, especially in the context of the NATO alliance.[47]

Through an analysis of the British Army's attempts to develop tactical nuclear capabilities during the 1950s, this thesis contributes to the existing literature in two ways. First, it challenges the established historiography of the post-war British Army by arguing that the

[45] David French, *The British Way in Warfare, 1688-2000* (London: Unwin Hyman, 1990), pp. 232.
[46] Although Julian Lider does provide some useful insights into British thinking about tactical nuclear warfare in his, *British Military Thought after World War II* (Aldershot: Gower, 1985).
[47] See, for example, Christoph Bluth, *Britain, Germany, and Western Nuclear Strategy* (Oxford: Oxford University Press, 1995) and Beatrice Heuser, *NATO, Britain, France and the FRG: Nuclear Strategies and Forces for Europe, 1949-2000* (Basingstoke: Macmillan Press, 1997).

service was not an outmoded military dinosaur, but a forward thinking organisation that invested great effort in thinking about the future battlefield and the types of forces that would be needed to fight and prevail on the nuclear battlefields of the Cold War. Second, the thesis enriches current scholarship on British nuclear weapons policy by providing a detailed examination of the issues surrounding tactical nuclear weapons in Britain during the 1950s – it assesses contemporary theories of war involving the use of those weapons in combat, examines the differences in how the military and their political leaders viewed small yield nuclear weapons, and explores the role played by tactical nuclear weapons within British national and alliance strategic planning.

Thesis Structure

The thesis is divided into three sections, each of which examines one of the three interrelated themes outlined above: British defence policy and strategic planning; the British Army in national and alliance strategy; and Army preparations for nuclear combat. Each of these sections comprises two chapters which analyse thematically a different sub-theme within the section. A final chapter connects the different strands of investigation together to show how British thinking about tactical nuclear weapons and the future nuclear battlefield were influenced and shaped through the interactions between the three central themes.

Section One: The Politics of British Defence Policy, 1945-1957

The first section examines the broad issues of British defence policy-making for the years under review to ascertain how tactical nuclear weapons were conceived within national strategy. Chapter I examines the bureaucratic politics and decision making processes of British defence policy during the 1950s. The decade witnessed major organisational changes in the defence establishment with the emergence of a powerful Ministry of Defence that challenged the

authority of the hitherto dominant service ministries. The chapter argues that a consequence of this was that strategic planning was taken out of the hands of the military Chiefs of Staff and into those of political leaders, allowing subsequent governments to force the Army, and the other services, to accept strategic concepts with which they did not always agree. It is maintained that the Army was also politically ineffective in communicating its needs and desires to its civilian masters which served only to exacerbate the problem. Finally, the chapter argues that these political and bureaucratic developments created a backdrop that made it difficult for the Army to develop nuclear capabilities.

Taking a more focused view of the British defence establishment's views on nuclear strategy, Chapter II uses as a vehicle the debate on the relative merits of 'Graduated Deterrence' versus 'Massive Retaliation' to demonstrate how political leaders conceptualised the political and military utility of tactical nuclear weapons. It argues that the British government rejected the American suggestion to draw distinctions in peacetime between strategic and tactical nuclear weapons on the grounds that such an announcement would undermine the overall deterrent effect of nuclear weapons. It is maintained that for British political leaders, tactical nuclear weapons were not meaningful military tools to be employed effectively in limited war but as weapons of escalation whose use would trigger a strategic nuclear exchange between the superpowers. As a consequence of this policy, it is argued that government was therefore unwilling to support the Army's claim for a stake in the future delivery of the nation's nuclear weapons.

Section Two: The British Army in National and Alliance Strategy

The second section places the British Army within the context of national and alliance strategy to determine how the service viewed its *raison d'etre* in the nuclear era. Chapter III runs chronologically from 1945 to 1952 and examines the position of the British Army as it stood

after the end of the Second World War. In the context of the rapidly changing political, military, and economic environment of the post-war world, the chapter explores how the traditional roles and functions of the British Army fundamentally changed in light of the nuclear revolution. How the Army perceived the new purpose of land power in the atomic age is assessed, paying particular attention to the service's preferred *modus operandi*. The chapter also examines strategic planning within the Army and how it conceptualised fighting a conventional land war against the Soviet Union in Central Europe. It argues that the seeds of later thinking about nuclear operations were planted during the late 1940s when theorising about high-intensity land warfare against a numerically superior military power.

Chapter IV examines the NATO dimension to the British Army's nuclear planning during the middle 1950s. In 1954, the Alliance committed itself to a nuclear defence of Western Europe. Consequently, the British Army of the Rhine, a major component of the multi-national Northern Army Group, had to be prepared to fight a tactical nuclear battle if the Cold War suddenly became 'hot'. For this reason, the need for British tactical nuclear capabilities, in the European Central Front region at least, assumed a new impetus, encouraging further debate about the nature of the British military contribution to the defence of the NATO area and the role played by tactical nuclear weapons within that commitment. This chapter argues that BAOR, and NATO more widely, had to rely on the tactical use of nuclear weapons militarily if it ever hoped to halt the advance of the Red Army across the intra-German border.

Section Three: The British Army and the Nuclear Battlefield

The third section assesses the Army's experiences in preparing intellectually and organisationally for nuclear land combat. Chapter V assesses how the Army officer corps set about trying to envision what a future war would look like and the type of doctrine, tactics, and organisations that would be required to be able to fight and prevail on the atomic battlefield.

Through the examination of contemporary service journals, memoirs, and unpublished personal papers, the chapter highlights the proliferation of writing on nuclear matters that occurred within the junior ranks of the Army in the early 1950s and argues that intellectually the officer corps possessed the capacity for organisational innovation with tactical nuclear weapons. The chapter also looks at the impact that innovations in the Canadian and American armies had on developments in Britain, especially with regards to changes that were being made to the size and composition of combat formations in those nations' land forces.

Building upon this, Chapter VI examines how early concepts put forward by Army personnel regarding atomic land combat were put into practice through tangible training regimes, war-games, and military manoeuvres to indoctrinate troops for fighting in atomic conditions, and through the research, development, and acquisition of nuclear weapons for battlefield use. The chapter argues that Army operational research groups and training institutions made some headway into the practical challenges of preparing the service for nuclear ground war and that the results gained from these assessments highlighted some of the dilemmas inherent in planning for warfare using a new and untested weapon of unprecedented power. Furthermore, the chapter suggests that the inability of the Army to acquire its own tactical nuclear weapon system had a negative effect on the ability of the Army to instigate radical changes in force structures so that it could maintain its combat effectiveness in a nuclear environment.

Section One

The Politics of British Defence Policy, 1945-1957

Chapter I

Bureaucratic Politics and the Decision-Making Process

In November 1947, the *Royal United Services Institute Journal* published an article by 'Navarino', the pseudonym of a rather perturbed Royal Navy officer, entitled 'Is It Happening Again?'. The article was a reaction to the announcement made in the 1947 defence White Paper that the manpower of the services would be reduced by 150,000 personnel. It lamented the British tradition of parliamentary parsimony in peacetime which saw the armed forces whittled down to such an extent that the nation became dangerously unprepared to fight a major war when the next one came about. The failure by politicians to invest in the ultimate insurance policy for national security during the 1930s had, the author claimed, almost lost Britain the struggle against Nazi Germany and resulted in 'years of war and ruinous expenditure to build them up and win through to safety'.[1] More than sixty years later in the wake of the Coalition Government's Strategic Defence and Security Review (2010), defence commentators again were criticising the British habit of exacting seemingly arbitrary cuts to defence budgets on the grounds that the services would be ill prepared to face a future great power threat should one arise.[2] Little seems to have changed during the 60 years since Navarino asked 'is it happening again?'.

That successive generations of defence commentators and practitioners have had concerns over the perceived languishing of military capabilities in times of peace underlines one of the perennial problems of peacetime defence planning – how much money is to be assigned to

[1] 'Navarino', 'Is It Happening Again?' *The RUSI Journal*, Vol. 92, No. 568 (1947), pp. 593-596.
[2] Trevor Taylor, 'What's New? UK Defence Policy Before and After the SDSR', *The RUSI Journal*, Vol. 155, No. 6 (2010), p. 13.

national defence, and what share is to be allocated to each branch of the armed forces.[3] These important questions appear to be all the more unanswerable since there is no satisfactory way of determining how much from the public coffers should be expended on national security when danger appears remote, and other areas of public spending make claims on ultimately finite resources. The difficulty is that defence cannot be viewed in isolation to other national interests, but must be understood within the broader context of grand strategy, which, by its very nature, has to consider a number of competing national interests.[4]

The amount of money to be spent on national defence, therefore, is a matter for the civil authorities. That the political leadership controls defence budgets means that it is also largely responsible for deciding the priority in military capabilities to be developed. However, since political leaders are first-and-foremost ministers of state, and usually not professional military personnel, there is a risk that they will not fully understand the military instrument at their disposal. Consequently, they might ask more of it that it can deliver, leading to a mismatch between policy objectives and what can reasonably be achieved by national armed forces.[5] In turn, military leaders might lose confidence in their political masters if they believe that civilian intervention into the military decision-making process is harming the formulation of military strategy. Strategy is that curious limbo that lies between two different worlds – the political and the military. Who exactly should decide on national military strategy, the politicians or the soldiers, is therefore of great importance but, like the allocation of resources, not easily solved. The influential nineteenth century Prussian military theorist, Carl von Clausewitz, believed that military opinion should always be subordinated to the political in the formulation of national strategy – since it is a government's policy that creates a state of war in the first place – but

[3] Franklyn A. Johnson, *Defence by Committee: The British Committee of Imperial Defence, 1885-1959* (London: Oxford University Press, 1960), pp. 48-60.
[4] Michael Howard, 'Civil-Military Relations in Great Britain and the United States, 1945-1958', *Political Science Quarterly*, Vol. 75, No. 1 (March 1960), pp. 39-42.
[5] Colin S. Gray, 'New Directions for Strategic Studies? How Can Theory Help Practice?' in Colin S. Gray (Ed.), *Strategy and History: Essays on Theory and Practice* (London: Routledge, 2006), p. 43.

that it is highly important, nonetheless, that political leaders be well educated in the theory and practice of warfare.[6]

In Britain, tight civilian control over the armed forces has always been a highly valued constitutional practice, but this has not always been translated in to strong strategic appreciations.[7] Part of the problem, as Clausewitz highlighted, is that military strategy has all too often been left in the hands of the military. In response to this, British civilian leaders, particularly since 1945, have sought to control the limits of the services by setting strict, and sometimes, crude budgetary ceilings. A corollary of this is that the services have often been thrown into fierce competition with one another to secure what they believed to be a fair share of the defence budget. The advent of the Royal Air Force as a third independent service in 1918 further complicated the business of strategic planning and resource allocation, which was only conflated by the increasing need in modern warfare for greater cooperation between all arms.[8] The result has been, since the inter-war years, a culture of bargaining and compromise between the three services, which prevented the attainment of a unified defence policy that reflected a balanced, tri-service appreciation of the strategic environment. This problem was exacerbated by the absence of a strong Ministry of Defence which could curtail the more damaging effects of inter-service rivalries.[9] Since 1945, successive British governments attempted to remedy these deficiencies by centralising the primary mechanisms of defence policy-making under political control.

This chapter examines the politics of British defence policy-making throughout the years covered in this thesis, 1945-1957. It focuses on civil-military and inter-service relationships and assesses how these dynamics influenced the major strategic debates of the period. The

[6] Carl von Clausewitz, *On War*, Book VIII Chapter VI, Michael Howard and Peter Paret (Eds. and trans.) (London, Toronto, and New York, NY: Everyman's Library, 1993), pp. 733-736.
[7] Hew Strachan, *The Politics of the British Army* (Oxford: Clarendon Press, 1997), pp. 7-9.
[8] E. J. Kingston-McCloughry, *The Direction of War: A Critique of the Political Direction and High Command in War* (London: Jonathan Cape, 1955), pp. 110-112.
[9] William P. Snyder, *The Politics of British Defense Policy, 1945-1962* (London: Benn, 1964), pp. 154-159.

decade witnessed major organisational changes in the defence establishment with the emergence of a powerful Ministry of Defence that challenged the authority of the hitherto dominant service ministries. The chapter argues that the emergence of a powerful Ministry of Defence meant that strategic planning was often taken out of the hands of the military Chiefs of Staff and into those of political leaders, allowing government to force the Army, and the other services, to accept strategic concepts with which they did not always agree. It is maintained that this bureaucratic environment created a backdrop that made it difficult for the Army to develop nuclear capabilities. In this context, the chapter acts as a springboard for further analysis into the perceived roles and functions of tactical nuclear weapons within British defence policy and the effects this had upon the Army.

The chapter is divided into four sections, each of which is concerned with a distinct phase in the evolution of British defence policy. The first section provides an overview of the primary mechanisms of British defence policy-making in 1945 and examines the rationales behind the decision to move towards a more centralised organisation for defence. The second section analyses the impact of the Churchill government's Radical Review of defence policy on strategic planning. The third section assesses the services reactions to the Long Term Defence Programme of the middle 1950s, and how this affected defence policy-making. The final section considers the implications of Duncan Sandys' defence review upon civil-military relations in Britain.

Towards a Central Organisation for Defence, 1945-1950

Since the beginning of the twentieth century British governments had developed a complex system of committees to direct the formulation of national defence policy. While this culture of 'defence by committee' had managed to guide Britain through the turbulent years of the first half of the twentieth century relatively unscathed, the experiences of the Second World War

revealed the benefits of a more centralised defence organisation of the type that Winston Churchill had commanded in his dual role as Prime Minister and Minister of Defence. The requirement for a unified defence establishment appeared to be all the more pressing in the austere economic climate of post-war Britain. All government expenditure, especially defence, was subjected to vigorous interrogation by ministers eager to find economies in public spending to ease the burden of British foreign debt. Accordingly, in 1946 the civilian leadership began to overhaul the machinery of defence to achieve tighter political control of the armed forces.

In 1945 the central hub of the policy-making system was the Cabinet. The Cabinet had no statutory powers or functions, but since it consisted of the senior ministers of the dominant party in the House of Commons, it was the directing body of national policy.[10] Such was the demanding nature of Cabinet business that it only sat to consider major policy issues or to intervene in matters where there was a division of opinion between ministers and departments which could not be resolved without reference to the highest authority.[11] As a result, much of the Cabinet's business was carried out by one of a number of standing committees. Responsible for all defence issues was the Cabinet Defence Committee (CDC), which was tasked with keeping under review the major changes in the strategic environment, coordinating current operations, and examining any special defence matters that were referred to it.[12] The CDC was chaired by the Prime Minister and its membership varied over time. In 1945 the Defence Committee was made up of the Secretary of State for Foreign Affairs, President of the Board of Trade and Minister of Production, First Lord of the Admiralty, Secretary of State for War, and the Secretary of State for Air.[13] In addition to the permanent members of the CDC, other ministers could be invited to its deliberations at the behest of the Prime Minister.

[10] The National Archives, Kew [hereafter, TNA], CAB 181/2, Precedent Book, Part I, The Cabinet, 1954.
[11] TNA, CAB 181/3, Precedent Book, Part I, Annexes, 1954.
[12] TNA, CAB 69/7, DO(45)1, Cabinet Defence Committee, Membership and Terms of Reference, note by the Secretary of the Cabinet, 5 July 1945.
[13] Ibid.

The professional military advisors to the Cabinet Defence Committee were the Chiefs of Staff (COS) of the three fighting services: the First Sea Lord, the Chief of the Imperial General Staff (CIGS), and the Chief of the Air Staff (CAS), who together formed the Chiefs of Staff Committee (COSC). The COSC was established in 1923 as a sub-committee of the Committee of Imperial Defence, the pre-war spiritual predecessor to the CDC, which had been the guardian of British defence policy from 1904 to 1946.[14] The rationale for the establishment of the COSC was to encourage closer liaison and cooperation between the two senior services, the Royal Navy and Army, and the newly independent Royal Air Force (RAF).[15] The 1924 terms of reference for the COSC stated that in addition to their roles as the heads of their respective services, the three Chiefs of Staff 'will have an individual and collective responsibility for advising on defence policy as a whole, the three constituting, as it were, a Super-Chief of a War Staff in Commission'.[16] Ultimately, it was hoped that the COSC would adopt a unified front when advising government on national defence policy that reflected a balanced, tri-service view of the strategic situation.

The COSC itself was also supported by a number of sub-committees that functioned in the fields of strategic planning, intelligence, and administrative planning. The most important of these sub-committees were the Joint Planning Staff (JPS) and the Joint Intelligence Committee (JIC). The members of these bodies belonged to their individual service ministries yet came together for consideration of inter-service matters. The Joint Staffs were also responsible for maintaining close working relationships with the Foreign Office, Colonial Office, Ministry of Transport, and other government departments through the Joint Staff Secretariat. The JPS was made up of the three service Directors of Plans who were responsible for developing military

[14] Johnson, *Defence by Committee*, pp. 48-60.
[15] TNA, CAB 181/10, Functions of the Cabinet Secretariat, memorandum by the Secretary of the War Cabinet, 14 December 1944.
[16] Cmd. 2029, *Report of the Sub-Committee of the Committee of Imperial Defence on National and Imperial Defence* (London: Her Majesty's Stationary Office [hereafter, HMSO], 1924), p. 25.

plans against the changing strategic landscape. Likewise, the JIC, which was headed by a Foreign Office official, included the three service Directors of Intelligence and was charged with providing military intelligence to the Chiefs of Staff.[17] One contemporary observer noted that the weakness of this organisation was that the Joint Staffs rarely took an original approach to inter-service problems and had a tendency to present compromise solutions rather than the best inter-service answer.[18] As will be shown, this bargaining culture among the various defence committees would have important implications for British defence policy-making during the period under review.

In 1945, the Royal Navy, Army, and RAF still retained their own respective service ministries: the Admiralty, the War Office, and the Air Ministry. The War Office, like the other service ministries, was a department of state, the head of which was the Secretary of State for War. Through the Secretary of State, the War Office was responsible to the Crown and Parliament for the control, organisation, training, and administration of the Army both at home and abroad. The War Office was directed by a board of civilians and soldiers known as the Army Council which contained three elements: ministerial, military, and civil. The Secretary of State for War was automatically President of the Army Council, and along with the Under Secretary of State were the ministerial members concerned with the political aspects of Army policy. The military members of the Council were represented by the heads of the executive military branches of the War Office: the CIGS, the Adjutant-General, the Quartermaster General, the Vice Chief of the Imperial General Staff, and the Deputy Chief of the Imperial General Staff. The civilian member of the Army Council was the senior civil servant in the War Office, the Permanent Under-Secretary of State.[19]

[17] Johnson, *Defence by Committee*, p. 309.
[18] Kingston-McCloughry, *The Direction of War*, pp. 214-215.
[19] TNA, WO 279/765, Notes on the British Army, April 1952, p. 33.

This interlocking system of committees and ministries had evolved throughout the interwar period and was the governmental machinery through which defence policy was administered and executed. The tumult of war, however, in 1939 brought with it some important changes in the central organisation of defence that led ultimately to greater civilian participation in military affairs. On becoming Prime Minister in 1940, Winston Churchill immediately created the post of Minister of Defence, which he himself occupied, the office having no actual ministry.[20] Churchill hoped to exact greater control over the direction of the war and even insisted on chairing personally many of the COSC meetings, which soon became his primary tool for commanding the armed forces of the state. The COSC eventually became the British half of the Anglo-American Combined Chiefs of Staff Committee, forming the United Kingdom's input into the joint war effort with the United States. These developments were noted with interest by the Deputy Prime Minister, Clement Attlee, who set up a ministerial committee to study the central organisation of defence soon after his Labour Party took full power in 1945.[21]

Consequently, the 1946 *Statement Relating to Defence* explained to Parliament that the government intended to implement changes to the central organisation of defence that would embody many of the adjustments that had taken place during the war-time years – particularly, those that had resulted in greater political control over defence policy.[22] The ministerial committee in charge of investigating these issues concluded that, historically, the major weakness of the British defence establishment was the absence of 'a guiding hand to formulate a unified defence policy for the three Services'. They argued that this had led to duplicate effort, waste, and a general ineffectiveness, which had only improved when Churchill had centralised

[20] TNA, CAB 181/10, Functions of the Cabinet Secretariat, memorandum by the Secretary of the War Cabinet, 14 December 1944.
[21] Franklyn A. Johnson, *Defence by Ministry: The British Ministry of Defence, 1944-1974* (London: Duckworth, 1980), pp. 14-17.
[22] Cmd. 6743, *Statement Relating to Defence* (London: HMSO, 1946), p. 8.

decision-making under civilian control during the war.[23] The committee maintained that it was even more important to have a fully integrated defence organisation in peace than it was in war since:

> In peace-time…when danger seems remote, and there is a natural reluctance to make adequate provision for defence, it is of great importance that our higher defence organisation should be as effective as possible, so that full value for money can be secured and the nation will not live in a fool's paradise.[24]

The committee suggested several changes to the machinery of defence that might encourage a more unified defence policy: by amalgamating the three services and placing them under the command of an all-powerful Minister of Defence; creating a Combined General Staff similar to the German *Oberkommando der Wehrmacht* (OKW) that would develop national rather than service strategies; and by appointing an independent Chairman of the Chiefs of Staff Committee who was directly responsible to a Minister of Defence.[25] This latter suggestion was favoured by the Chief of the Imperial General Staff, Bernard L. Montgomery, who believed that the only way 'to get the Chiefs of Staff to achieve something instead of being merely a debating society' was to install a Chairman of the Chiefs of Staff Committee 'who will advise the Minister [of Defence] what to do and will make him give a decision'.[26]

In the event, however, the recommendations made by the ministerial committee did not come immediately to fruition. The government appeared satisfied that there were no grounds for any radical restructuring of the defence organisation: the amalgamation of the three services, although considered for the future, was not thought desirable at that time; adoption of

[23] TNA, CAB 129/12, CP(46)345, Central Organisation for Defence, report of Ministerial Committee, 11 September 1946.
[24] Ibid.
[25] Ibid.
[26] Imperial War Museum [hereafter IWM], Montgomery Ancillary Collections 4, Montgomery to Francis de Guingand, 1 March 1948. Montgomery also described the Chiefs of Staff Committee as a 'spineless outfit' and a 'useless body' that resembled a 'Board of Directors' due to their inability to initiate any changes. IWM, Montgomery Ancillary Collections 4, Montgomery to Francis de Guingand, 21 February 1947. See also, Bernard L. Montgomery, *The Memoirs of Field-Marshal The Viscount Montgomery of Alamein* (London: Collins, 1958), pp. 487-495.

a German style OKW was rejected on the grounds that it was inferior to the existing Joint Staff system; and the creation of a Chairman of the Chiefs of Staff Committee was not deemed necessary since the Prime Minister could already perform many of its functions.[27] There were minor changes, however, which sought to consolidate the advances that had been made during the war. The most important reforms were the creation of a Defence Committee, which would take over the functions of the old Committee of Imperial Defence and would be responsible to Cabinet both for the review of current strategy and for coordinating departmental action in war, and the creation of a new post of Minister of Defence, this time, with its own ministry. The functions of the new Minister of Defence were to allocate resources among the three services in accordance with the strategic policy laid down by the Defence Committee; to settle questions on which a common policy for the three services was desirable; and to coordinate inter-service organisations.[28]

The changes that were made to the central organisation for defence in 1946 were significant in that they set in motion a process by which civilian influences steadily encroached on the military in the formulation of national defence policy. As will be shown, although these were cautious first steps, the blueprints had been laid for future reforms to the central organisation of defence. Government emphasis appeared to be on developing an organisation that would allow greater control over the three services and their access to resources. This can be seen as a reaction to the difficult economic times in which Britain found herself after 1945. Political leaders understood that defence budgets would have to be cut and that this would require closer control over service expenditure. As the 1947 *Statement Relating to Defence* explains:

> At a time when defence activities, and the resources that can be allocated to them, are shrinking, it is the more important to ensure that first things come first, and that, while the immediate problems and commitments of the Armed Forces are provided for, the longer view of defence needs and the means of fulfilling them are given full weight.[29]

[27] Cmd. 6923, *Central Organisation for Defence* (London: HMSO, 1946), pp. 5-6.
[28] Ibid., pp. 6-7.
[29] Cmd. 7042, *Statement Relating to Defence* (London: HMSO, 1947), p. 3.

Accordingly, the Treasury informed the services in 1946 that future defence estimates should be based on the assumption that Britain would not be involved in a major war for the next five years. A. V. Alexander, the first government minister to assume the role of Minister of Defence, issued a directive to the Chiefs of Staff in August 1947 stating that the maximum annual expenditure allowed for the armed forces would be £600m and that 'it must be accepted that the financial limit imposed may prevent us having the defence forces hitherto considered necessary on the outbreak of war'.[30] Alexander accepted that this would involve taking serious risks and that if attacked within the next five years, Britain would be forced to 'fight with what we have'.[31] The directive called for expenditure on the Royal Navy to be cut from £185m to £160m, the Army £330m to £270m, and the Royal Air Force £195m to £170m.[32] Montgomery lamented what he believed to be 'a return to the old system of arbitrarily cutting each of the original service proposals' and warned that the only way that the War Office could secure such savings was to reduce Army manpower radically, which might have a potentially catastrophic impact on the ability of the service to carry out its post-war tasks.[33]

Although the War Office was against the proposed cuts, they were, nonetheless, an inevitable consequence of government policy. Alexander was presented with stark choices since the allocation of resources, however scarce, between the three fighting services fell within his remit as Minister of Defence. In a House of Commons debate on 27 October 1947, Alexander made clear his views on what he believed should be given priority in defence planning:

> In the light of the circumstances with which we are faced, my own view is that the first priority, which must not be interfered with, is defence research. The second, in the light of the present developing situation, must be to maintain the structure of the Royal Air

[30] TNA, DEFE 5/5, COS(47)173(0), Future Defence Policy – Strength of the Armed Forces, 23 August 1947.
[31] Ibid.
[32] TNA, DEFE 5/5, COS(47)185(0), Future Defence Policy – Strength of the Armed Forces, Note by the CIGS, 1 September 1947.
[33] Ibid.

> Force, and its initial striking power. The third priority is for the maintenance of our sea communications, and, therefore, for the most efficient Navy we can get in the circumstances, and then we will do the best we can for the Army.[34]

There was no mistaking that the Minister of Defence viewed the Army and its expensive conventional forces as the lowest priority. This was a view shared by the Navy and the RAF. A report by the Joint Planning Staff saw a proposal by the Director of Plans, Admiralty, which suggested that the only means by which the services could implement the Future Defence Policy within the financial limit of £600m was to reduce radically the Army at the expense of the other two services.[35] Likewise, the Chief of the Air Staff, Lord Tedder, argued in a 1947 report on the shape and size of the armed forces that the Army would not require large conventional forces since in the event of an atomic attack there would be no role for the service except in aiding the civil powers in the United Kingdom.[36] Tedder even went as far as to suggest that the Army 'were not facing the changed type of warfare which modern weapons had already brought about'.[37] These views found sympathy with the Prime Minister who appeared reluctant to maintain substantial land forces in Europe since 'previous experience had shown how continental commitments, initially small, were apt to grow into very large ones'.[38]

Even as early as 1947, government appeared reluctant to finance indefinitely the Army's large and expensive force structures, and this was supported by the other two services as a result of vested interests and partisan strategies. As will be shown in the second section, the rapid run-down of Army manpower, coupled with an increasing national commitment to European security, meant that the British Army of the Rhine was left woefully unprepared for continental warfare against a modern and numerically superior land power. This forced the organisation to look for ways to counter-balance this weakness, and the allure of new and

[34] *Hansard*, House of Commons Debate, Vol. 443, Col. 652, 27 October 1947.
[35] TNA, DEFE 6/3, JP(47)129(Final), Shape and Size of the Armed Forces, 11 November 1947, p. 39.
[36] TNA, DEFE 32/1, COS(47)147, Shape and Size of the Armed Forces, 26 November 1947, p. 2.
[37] TNA, DEFE 32/1, COS(47)143, Shape and Size of the Armed Forces, 19 November 1947, p. 4.
[38] TNA, DEFE 4/10, COS(48)18, Minutes of Staff Conference held at 10 Downing St., 4 February 1948.

powerful weapons was strong. The Whitehall battle for resources for which the Army was preparing appeared to be just as brutal as the one that it might have to prepare for to fight the Red Army in Europe since the guiding hand of the emerging Ministry of Defence was not influential enough to bring to heel the three services, which continued to compete with one another against a backdrop of successive budgetary crises. Radical reform was spurned in favour of incremental changes as far as attempts to overhaul the central machinery of defence went in the immediate post-war years. Real power over service planning still remained with the respective ministries since those historic institutions were not abolished and survived relatively untouched. This was an issue that was addressed by subsequent governments, with important implications.

Global Strategy and Radical Review, 1951-1953

Between 1951 and 1954, Winston Churchill's Conservative government tried desperately to bring about a major review of defence policy. Fiscal considerations lay at the heart of this Radical Review because of Britain's worsening economic position, a situation exacerbated by Labour's expensive Korean War rearmament package. The review also sought to elevate the significance of strategic nuclear weapons in British defence policy and stressed the need for the armed forces to be armed with the most modern and up-to-date armaments and equipment. All of this, however, meant a major reorganisation of the size, composition, and roles of the three services in addition to a fresh look at how resources were distributed among them. This placed heavy demands on the Minister of Defence whose job it was to force programmes on the services with which they did not always agree. The result was bargaining and compromise between the Royal Navy, Army, and RAF, as each service fought to protect its own institutional interests and organisational essence.

Shortly after the General Election in October 1951, Winston Churchill's Conservative government concluded that fundamental changes would have to be made in the British defence establishment.[39] Two reasons in particular informed this belief. First, that Britain's deteriorating economic position required urgent savings to be made in the defence budget; and second, that not enough emphasis was placed in British defence planning on the utility of nuclear weapons to deter Soviet adventurism. The Chiefs of Staff were duly instructed to embark on a major review of British strategy that took note of these concerns – the result was the 1952 'Defence Policy and Global Strategy' paper.[40] The report was prepared by the First Sea Lord, Sir Rhoderick McGrigor, Chief of the Imperial General Staff, Sir William Slim, and the Chief of the Air Staff, Sir John Slessor, during the spring of 1952 at the Royal Naval College, Greenwich. The paper has been lauded by historians as 'one of the most significant documents in the history of post-war British defence planning' and an 'important innovation in military thought'.[41] Although some commentators have questioned the significance and innovatory nature of the paper, the majority view the Defence Policy and Global Strategy Paper as 'a classic among military documents'.[42]

The central thrust of the 1952 paper was that nuclear weapons had revolutionised the conduct of warfare and that the ability of the Western allies to resist Soviet aggression rested on the health of the Western European economies. As Slessor outlined in an internal Air Staff memorandum during the Chiefs discussions at Greenwich:

> The basis of the Chiefs of Staff Global Strategy Review is that the financial restrictions which will be imposed upon us in the coming years will be so severe that a complete re-shaping of the Armed Forces as at present planned must be considered. We have

[39] Eric J. Grove, *Vanguard to Trident: British Naval Policy since World War II* (London: The Bodley Head, 1987), pp. 78-82.
[40] Alan Macmillan and John Baylis, *A Reassessment of the British Global Strategy Paper of 1952*, International Politics Research Papers 13 (Dept. of International Politics, University of Wales, Aberystwyth, 1993), p. 2.
[41] Grove, *Vanguard to Trident*, p. 83; R. N. Rosecrance, *Defense of the Realm: British Strategy in the Nuclear Epoch* (London: Columbia University Press, 1968), p. 171.
[42] John Baylis and Alan Macmillan, 'The British Global Strategy Paper of 1952', *Journal of Strategic Studies*, Vol. 16, No. 2 (1993), p. 200. Ian Clark and Nicholas J. Wheeler acknowledge the importance of the paper but believe that its originality has been exaggerated. See, Ian Clark and Nicholas J. Wheeler, *The British Origins of Nuclear Strategy, 1945-1955* (Oxford: Clarendon, 1989), p. 170.

> adopted a new strategic concept which puts more reliance on the Bomber offensive and assumes that the war will be a short one.[43]

The 'new strategic concept' that Slessor referred to was 'Massive Retaliation', that is to say, the threat that any acts of aggression would be punished by a massive strategic nuclear bombardment against the belligerent's homeland. Although the Chiefs of Staff had been thinking about nuclear deterrence in the 1947 and 1950 defence reviews,[44] the concept gained greater emphasis in the 1952 paper. The Chiefs of Staff stated that the strength of the U.S. Strategic Air Command was now so great that it could respond to Soviet aggression with such a devastating attack upon the USSR's vital centres that 'she would be unlikely to survive it as a Power capable of waging a full scale war'.[45] Since there was no known defence against atomic airpower, the Chiefs presumed that the Kremlin would be sufficiently deterred from embarking upon aggressive action by the threat of 'immediate and crushing retaliation' with the atomic weapon.[46]

On the economic issue, the Chiefs of Staff identified that various developments had combined to undermine the economies of Britain and Western Europe. Specifically, the expensive rearmament programme initiated by the Attlee government eighteen months previously could no longer be sustained.[47] The conclusion drawn from the Korean rearmament experience was that the maintenance of large conventional forces was not compatible with the requirements of a healthy economy.[48] This view was strengthened by the fact that the

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[43] TNA, AIR 19/737, CAS 1118, Chief of the Air Staff to the Secretary of State for Air, 28 May 1952.
[44] See the relevant sections of TNA, CAB 21/1800, DO(47)44, Future Defence Policy, 22 May 1947 and TNA, CAB 21/3503, DO(50)45, Defence Policy and Global Strategy, 7 June 1950.
[45] TNA, CAB 131/12, D(52)26, Defence Policy and Global Strategy, report by the Chiefs of Staff, 17 June 1952.
[46] Ibid.
[47] The rearmament programme, decided in December 1950, raised the defence budget from a pre-Korean War total of £2,300 million to £4,700 million, 15 per cent of the GNP. Cmd. 8146, *Defence Programme: Statement made by the Prime Minister in the House of Commons on Monday, 29th January, 1951* (London: HMSO, 1951), p. 6. For further discussion see, Jihang Park, 'Wasted Opportunities? The 1950s Rearmament Programme and the Failure of British Economic Policy', *Journal of Contemporary History*, Vol. 32, No. 3 (July 1997), p. 358.
[48] Andrew J. Pierre, *Nuclear Politics: The British Experience with an Independent Nuclear Force, 1939-1970* (London: Oxford University Press, 1972), p. 87.

conventional fighting in Korea had proved to be prolonged, indecisive, and politically unpopular.[49] Furthermore, as recently as February 1952, NATO had agreed in the ambitious Lisbon force goals to build up a conventional strength of 96 divisions and 9000 aircraft by 1954 to counterbalance the Soviet Union's manpower superiority in Europe.[50] However, due to fiscal limitations, it was becoming increasingly obvious to the Chiefs of Staff that Britain and her continental allies would not be able to meet their scheduled contributions of land and air forces. Such was the deteriorating economic situation that the Chiefs feared that the Soviet Union could achieve a 'bloodless victory' should the Western European economies collapse.[51]

The solution to these two problems – how to successfully deter the Soviet Union whilst securing substantial financial savings in the defence budget – appeared to lie with the atomic bomb. The Chiefs of Staff assumed in 1952 that such was the unprecedented destructive power of the bomb that any would-be aggressor would be deterred by the appalling consequences of nuclear war. A corollary of this, it was hoped, was that the protective umbrella of nuclear deterrence would obviate the requirement for large conventional forces, thus reducing expenditure on expensive manpower.[52] The trouble with this logic, however, was that it assumed that nuclear weapons would have a decisive impact on the course of a future war – for the deterrent to be effective the enemy had to be certain that the use of nuclear weapons would result in its complete and utter annihilation. The Chiefs of Staff were forced to grapple with this difficult question when preparing their Defence Policy and Global Strategy paper. The conclusions that they reached, however, were somewhat muddled. The problem was the conflicting partisan strategies of the Service Chiefs, each of whom advocated a different view

[49] Lawrence Freedman, 'The First Two Generations of Nuclear Strategists' in Peter Paret (Ed.), *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Oxford: Oxford University Press, 1986), p. 739.
[50] TNA, CAB 129/49, C(52)49, The Report of the Temporary Council Committee of the North Atlantic Council, memorandum by the Secretary of State for Foreign Affairs, 19 February 1952.
[51] CAB 131/12, D(52)26.
[52] Ibid.

of a future war that was informed consciously and sub-consciously by vested interests and individual service preferences.[53]

The main points of contention between the Chiefs of Staff stemmed from the various imponderables of thinking about nuclear warfare – its intensity and duration, and the types of conventional and nuclear forces that would be required. The Chiefs agreed that the opening atomic phase 'will be of unparalleled intensity' and that 'it seems certain that both sides, particularly Russia and the United Kingdom, will have suffered terrible damage'.[54] What would follow next proved to be much more difficult to forecast. The Chiefs of Staff suggested that if the atomic phase was not decisive there 'may be a long-drawn-out period of chaos with an intermittent struggle gradually spreading worldwide'. At this point 'all forms of enemy attack will be much reduced, though perhaps less at sea than elsewhere'.[55] This phase of fighting became known as 'broken-backed' warfare and was a concept favoured by the Navy since it would allow the service to retain a large conventional fleet. It was apparently only included in the Global Strategy Paper at the personal insistence of McGrigor.[56]

Ultimately, the compromise solutions found in the Defence Policy and Global Strategy paper were a result of the RAF's perceived need to retain long range bombers for the strategic nuclear mission, the Navy's faith in the 'broken-backed' warfare phase and the consequent systems to fight it, and the Army's requirement for substantial conventional forces to fight a high-intensity land war. Understood in the context of the bureaucratic environment within which the services were operating during this period, this behaviour is understandable. By advocating competing strategies that favoured one service speciality over another, the military Chiefs, acting as the professional heads of their respective services, were attempting to

[53] For a contemporary view of these issues see, E. J. Kingston-McCloughry, *Global Strategy* (London: Jonathan Cape, 1957), pp. 154-155.
[54] CAB 131/12, D(52)26.
[55] Ibid.
[56] See Slessor's reflection on this matter in Anthony Seldon, *Churchill's Indian Summer: The Conservative Government, 1951-1955* (London: Hodder and Stoughton, 1981), p. 335.

enunciate strategic rationales that would secure greater resources for their service, while at the same time, protect its organisational essence from outside interference. From the Government's perspective, free from the tribal affiliations which permeated the service departments, all it saw was an ambiguous military strategy.[57]

The main problem was that the military had dominated the articulation of the strategy paper. As has been noted, the burgeoning Ministry of Defence was still in a weak position *vis-à-vis* the three services during this period since the latter still retained their powerful ministries.[58] Consequently, it became clear to senior ministers that without clear political guidance the Chiefs of Staff would not be able to unite the competing service strategies, and that the Government would be forced to intervene in order to set priorities among the force structures that reflected the economic and political needs of the administration. In November 1952 it was therefore decided that the 1953 defence programme would be subject to a radical review to determine the level of defence expenditure which could be afforded in light of the current economic situation. This would entail a general reduction of the armed forces and a fresh look at the nation's overseas security commitments.[59] Finding the correct balance to be struck between commitments and capabilities, however, would not be an easy task and the Prime Minister was adamant that 'we cannot abandon our obligations, but we may be able to find ways of fulfilling them at lower cost'.[60]

In January 1953, a Radical Review Ministerial Committee was established under the chairmanship of the Cabinet Secretary, Sir Norman Brook, to study the problem in more depth. Their report on future defence expenditure stated that the defence priorities postulated by the Chiefs of Staff in their Defence Policy and Global Strategy paper (in descending order of

[57] A detailed critique of this aspect of the 1952 Defence Policy and Global Strategy paper can be found in Julian Lider, *British Military Thought after World War II* (Aldershot: Gower, 1985), p. 203.
[58] Andrew Dorman, 'Crises and Reviews in British Defence Policy' in Stuart Croft et al., *Britain and Defence, 1945-2000: A Policy Re-evaluation* (Harlow: Longman, 2001), p. 12.
[59] TNA, DEFE 7/2349, Record of Meeting held in Norman Brook's Office, 12 November 1952.
[60] TNA, DEFE 7/2349, Winston Churchill to Norman Brook, 31 December 1952.

priority: cold war, the deterrent, preparations for major war) would not bring about a significant reduction in the cost of the defence programme. The committee stressed that this heavy burden of defence expenditure was because Britain was maintaining forces larger than she had ever attempted to support in peacetime, not least because of a permanent military commitment to NATO. The report concluded that, ultimately, ministers would have to decide the relative importance that they attached to Britain's role in Europe and as a major colonial and world power. Only then could commitments be reduced and economies found.[61]

Not long after the committee had submitted this report in May 1953 it came under attack by the Secretary of State for War who argued that the problem of reducing defence expenditure could not be solved by a policy statement by ministers about commitments – these were, after all, he argued, controlled more by Russian policy rather than British. Furthermore, the Secretary of State believed that the defence priorities were incorrect. While he agreed that the Cold War should come first, he did not think that the development of deterrent forces should come second – this was the domain of the United States and would only result in duplicate effort. Rather, he thought that preparations to fight a hot war should come second with a limited contribution to the deterrent coming third.[62] The Minister of Supply, Duncan Sandys, also joined the fray. For Sandys, the issue of setting priorities was quite clear. Since he believed that the opening phase of a nuclear war would prove to be decisive for Britain, there could only be two priorities – first, to provide the minimum forces necessary to carry out essential Commonwealth commitments and to develop forces that would directly assist in surviving the first opening phase of war; and second, to provide forces for 'broken-backed' war. Sandys

[61] TNA, CAB 134/809, DP(M)(53)2, The Future Course of Defence Expenditure, note by the Secretary of the Cabinet, 20 May 1953.
[62] TNA, CAB 134/809, DP(M)(53)4(Revise), Ministerial Committee on Defence Policy, memorandum by the Secretary of State for War, 15 June 1953.

advised that all expenditure on capabilities that did not fall into either one of these categories should be terminated.[63] It was hoped that this would produce the necessary savings.

The new budget was therefore set at £1,830m. However, this still proved to be too high for the ministerial committee. When it met again on 18 June (the Chiefs of Staff were not invited), a much more radical approach was taken in the hope of finding further economies. [64] As a result of this meeting a directive was issued to the Chiefs of Staff the next day by the Minister of Defence, Earl Alexander of Tunis, informing them that they had to find savings of £380m in the financial year 1955. This meant that overall expenditure on manpower and maintenance would have to be reduced, and an all-round reduction of the armed forces must be accepted. The directive stated that in order to adjust the size and shape of the armed forces so that they fit within the proposed financial limits, the following priorities should be applied:

> i) Minimum Forces required to carry out essential Commonwealth commitments in peace.
> ii) Forces essential to our survival through the opening phase (six weeks) of a future war.[65]
> iii) Forces which would not have a decisive effect upon our survival through the opening phase but would be needed in an ensuing period of 'broken-backed' warfare.[66]

In enunciating strict strategic priorities for defence planning, this June Directive, as it came to be known, sought to deny legitimacy to Army and Navy preparations for a long nuclear war. As Clark and Wheeler have highlighted, this was the first time in the nuclear age that senior ministers had initiated changes in strategic doctrine without prior consultation with their military advisors.[67] Indeed, it appeared that Alexander was finally applying a 'guiding hand' to encourage a more efficient defence programme as was envisaged in the 1946 White Paper

[63] TNA, CAB 134/809, DP(M)(53)5, Review of Defence Expenditure, memorandum by the Minister of Supply, 15 June 1953.
[64] Baylis, *Ambiguity and Deterrence*, p. 165.
[65] The Joint Planning Staff defined 'survival' as the ability of the UK to support British forces in Europe and to sustain counter-attacks against enemy air and air-mining bases. TNA, DEFE 4/64, JP(53)95(O)Final, Radical Review – Forces for Home Defence, report by the Joint Planning Staff, 30 June 1953.
[66] TNA, CAB 134/809, Defence Policy, Directive by the Minister of Defence, 19 June 1953.
[67] Clark and Wheeler, *The British Origins of Nuclear Strategy*, p. 184.

on defence organisation. From the perspective of the Chiefs of Staff, however, this civilian intervention into the decision-making process represented a worrying development, but one that would continue, nonetheless, throughout the 1950s.

In the wake of the June Directive, the services fought for their own interests in the hope of deflecting the worst of the cuts. The First Sea Lord, Sir Rhoderick McGrigor, was particularly vocal in his defence of the Navy's cherished 'broken-backed' warfare concept, arguing that it would be essential to keep open the sea lanes of communication to the UK from the very outset of hostilities.[68] Indeed, the First Sea Lord appeared content to dispute every minutia of the Radical Review in the hope of delaying the exercise. The new Chief of the Imperial General Staff, Sir John Harding, who had succeeded Slim on 1 November 1952, while agreeing with his Naval counterpart that the proposals outlined in the Radical Review were militarily unsound, advised McGrigor that to delay the issue would only result in increased difficulties for the Chiefs of Staff Committee and for the services. In a revealing comment, that highlights the conflicting roles of the Chiefs of Staff in their duel capacity as the official military advisors to the government and professional heads of their respective services, Harding explained that there were essentially two separate tasks facing the Chiefs of Staff: 'in the first place, forces must be analysed *under the terms of reference given by H.M. Ministers*, secondly, but at a later stage, the effects and unsoundness of the proposed readjustments should be argued and clearly presented'.[69]

The Chiefs of Staff had little choice then but to direct the Joint Planning Staff to re-examine the force structures of the three services in accordance with the June Directive. In the Middle East, the JPS reported that the minimum force levels needed to 'maintain the morale of the Arab states' was an infantry battalion each in Malta and Cyprus, a single fighter-bomber

[68] TNA, DEFE 4/63, COS(53)78, The Radical Review, 24 June 1953. See, in addition, McGrigor's letter to the Army and Air Chiefs reaffirming the importance of a conventional phase of operations in the aftermath of a strategic nuclear exchange. TNA, ADM 205/89, memo 1689, McGrigor to Harding and Dickson, 10 July 1953.
[69] TNA, DEFE 4/63, COS(53)80, The Radical Review, 26 June 1953. Emphasis added.

squadron posted in both Jordan and Iraq, and a fighter-bomber squadron, rifle squadron, and armoured car squadron deployed in Aden. While this would be enough to provide internal security, they would be 'unable to withstand a Russian assault' in the region.[70] Likewise, in the Far East, a delicate balancing act would have to be performed if the UK wanted to retain a semblance of great power status. Of particular concern was the effect that any force reductions would have on relations with Australia and New Zealand and on Britain's position in Hong Kong. The JPS concluded that it would be possible only to keep a sufficient presence in the region if commitments were reduced, most notably in Korea and Malaya.[71] On the home front, few reductions could be made. In the event of a determined air attack, the main difficulties would be a breakdown of central control and internal communications, severe disruption to major ports, sabotage, and airborne infantry threats. Already, forces were inadequate to deal with all of these problems so scratch formations would have to be assembled from Territorial Army units and civilian and military police forces.[72]

The Chiefs of Staff accepted this assessment reluctantly with minor modifications.[73] This signalled that the Radical Review exercise was now coming to an end, allowing the military Chiefs time to take stock of the situation. As Harding had explained at the height of the deliberations, now was the time that the Chiefs of Staff could present their views to the government from the perspective of professional sailors, soldiers, and airmen. The Chiefs agreed that they would inform the ministerial committee first and foremost that the June Directive was simply too rigid.[74] Consultation of the service tables showed that forces could not be neatly compartmentalised into separate categories, each with a different level of priority

[70] TNA, DEFE 4/64, JP(53)94 Final, Radical Review – Reduction of Forces in the Middle East, report by the Joint Planning Staff, 26 June 1953.
[71] TNA, DEFE 4/64, JP(53)93(Final), Radical Review – Reduction of Forces in the Far East, report by the Joint Planning Staff, 29 June 1953.
[72] DEFE 4/64, JP(53)95(O)Final.
[73] TNA, DEFE 4/64, COS(53)82, The Radical Review, 2 July 1953.
[74] TNA, DEFE 4/64, COS(53)87, The Radical Review, 11 July 1953.

assigned to it, not least because elements assigned to category III (the lowest priority) were of very great strategic importance.[75] Second, that these force levels would only actually result in about a third of the savings which were requested by the Chancellor of the Exchequer. Even then, this would take considerable time to affect. Finally, the Chiefs of Staff were keen to stress that the economies proposed under the June Directive 'would gravely damage the position of the United Kingdom as a world power'. Further savings could only be found by a considerable reduction of NATO commitments and in forces planned for the defence of the home islands.[76]

In one of the final communiqués of the Radical Review process, Duncan Sandys outlined the ministerial committee's final policy statement. The defence budget would be set at £1,650m for the following years up until 1956 and that money would be sub-allocated between the service departments, not on the basis of 'fair shares', but in strict accordance with the strategic priorities laid out in the June Directive. The committee stated that the major threat facing the United Kingdom was attack from the air. Although air defences were gradually improving, there was no real defence against long-range rockets tipped with atomic warheads. Since it would not be possible to protect the nation in the event of a major war, the committee advised that 'we must henceforth put the emphasis not so much on defences as upon deterrents'. The only real deterrent was believed to be the ability to retaliate with nuclear weapons. This meant that the UK must 'press ahead with the creation of a powerful bomber force, and the manufacture of atomic and thermo-nuclear weapons'. Inevitably, this would mean that RAF expenditure would rise. To keep defence spending under the budget ceiling, reductions would have to be made in expenditure on the Army and Navy. These economies would be found mainly in Army equipment programmes and by axing several of the Navy's aircraft carriers. It

[75] TNA, DEFE 4/64, JP(53)99(Final), Radical Review – Service Tables, report by the Joint Planning Staff, 29 June 1953.
[76] DEFE 4/64, COS(53)87.

was deemed not to be possible to reduce the ongoing continental commitment because of the continuing Soviet threat.[77]

The Radical Review represented an unprecedented attempt by a British government to take strategic planning out of the hands of the military. Although the underlying rationales for the defence review stemmed from economic considerations, the government still had to take into account strategic advice from the Chiefs of Staff. This can be seen in the government's acceptance of the services' view of a future war – an initial nuclear exchange of unparalleled intensity followed by a period of conventional fighting of undetermined length and ferocity. However, because the ambiguities and contradictions of the 1952 Defence Policy and Global Strategy paper had allowed the services to claim a variety of forces for both 'hot' and 'cold' war tasks, the Radical Review sought to rein in these competing claims through setting strict strategic priorities which would guide future defence planning. This signalled a shift in the balance of power between the Ministry of Defence and the service ministries that would continue unabated throughout the remainder of the 1950s.

Alliance Strategy and the Long Term Defence Programme, 1954-1956

The last year of the Churchill administration saw a greater emphasis placed on nuclear weapons in British defence policy. This was, in no small part, a result of the Prime Minister's personal belief in the utility of nuclear weapons, especially hydrogen bombs, to deter aggression. This move towards a greater reliance on nuclear weapons could also be seen in alliance strategy, and for the first time in NATO military planning, a tactical nuclear defence of Western Europe was incorporated into its war plans. When Anthony Eden succeeded Churchill as Prime Minister in April 1955, he wanted to continue the shift towards a greater reliance on nuclear

[77] TNA, CAB 134/809, DP(M)(53)15, Defence Policy and Expenditure, memorandum by the Minister of Supply, 20 November 1953.

weapons. Eden believed that the main threats facing the nation were political and economic, and so he wanted to concentrate on restoring the vitality of the British economy under the protective umbrella of the nuclear deterrent; funding on all obsolete military capabilities was to be withdrawn. The Eden government therefore attempted to instigate a Long Term Defence Programme that would guide this policy review. Moves were also made to modify the machinery of defence to allow closer political control over decision-making. However, bureaucratic and organisational constraints would frustrate attempts to bring about a major review of defence policy.

Since the Chiefs of Staff 1952 Defence Policy and Global Strategy paper, scientific progress had developed apace. As the Directors of Plans stated in a spring 1954 paper, weapons development in the atomic field had been particularly rapid, and nuclear armaments were now available in a variety of shapes and sizes – from small-yield nuclear weapons right up to the thermo-nuclear bomb, which had no theoretical limit to its explosive power.[78] The Chiefs of Staff were adamant that Britain should have these new weapons, not least because it was believed that this would strengthen the nation's influence and prestige in the world.[79] Although the cost of these new armaments would be considerable, the shift in British strategic planning was moving irrevocably towards a greater reliance on nuclear weapons.

This move away from conventional defence and towards nuclear deterrence was something British policy-makers hoped would be replicated in alliance strategy. Indeed, ever since the Chiefs of Staff penned their 1952 Defence Policy and Global Strategy Paper, Britain had been attempting to influence NATO strategic planning in a way that brought it into line with her own nuclear emphasis policy – the possibility of a British hydrogen bomb merely accelerated this trend. As will be shown in more detail in Chapter IV, it would not be long until NATO

[78] TNA, DEFE 4/70, JP(54) Note 11, United Kingdom Strategy, note by the Directors of Plans, 6 May 1954.
[79] TNA, DEFE 4/70, COS(54)54, United Kingdom Strategy, 12 May 1954.

adopted a new policy on force structure in its November 1954 planning document, MC 48, which, like the British 1952 Defence Policy and Global Strategy paper, was rooted firmly in the belief that massive nuclear retaliation could deter Soviet aggression without the need to invest in expensive conventional forces. As Beatrice Heuser has shown, MC 48 had much in common with the British Global Strategy Paper of 1952.[80] Thus, Britain had been successful in bringing alliance strategy into harmony with her own nuclear doctrine.[81]

The emphasis placed on nuclear weapons to combat Soviet aggression in MC 48 meant that military commanders would base their operational planning on the use of nuclear weapons – both strategic and tactical – to defend against a Soviet attack, irrespective of whether such weapons were used by the adversary.[82] Allied planners believed that NATO would be unable to prevent 'the rapid overrunning of Europe' unless it 'immediately employed' nuclear weapons 'both strategically and tactically'.[83] No longer did NATO strategy envisage a defence of Western Europe using exclusively conventional forces. Rather, in order to offset the numerical superiority of Soviet land forces, 'NATO forces-in-being' were to be equipped with an 'integrated atomic capability'.[84] Already, in October 1953, U.S. tactical nuclear weapons, in the form of the 280mm 'Atomic Annie' field gun, had begun to be deployed on the European Central Front for use in the land battle by NATO ground forces. As was hinted in the British 1952 Global Strategy Paper, tactical nuclear weapons had now become a substitute to the aborted manpower goals that had been agreed at Lisbon.

This new nuclear emphasis policy was a development that Anthony Eden was keen to continue when he succeeded Churchill as Prime Minister in 1955. In order to implement a new

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[80] Beatrice Heuser, *NATO, Britain, France and the FRG: Nuclear Strategies and Forces for Europe, 1949-2000* (Basingstoke: Macmillan Press, 1997), p. 35. For example, the previous NATO strategy document, MC 14/1 of 1952, while it acknowledged U.S. nuclear power, was still very much couched in terms of a conventional defence of Central Europe. See, NATO, MC 14/1 (Final), 9 December 1952.
[81] Rosecrance, *Defense of the Realm*, pp. 207-208.
[82] Christoph Bluth, *Britain, Germany, and Western Nuclear Strategy* (Oxford: Oxford University Press, 1995), p. 32.
[83] NATO Archives, Brussels [hereafter, NATO], MC 48 (Final), 22 November 1954.
[84] Ibid.

look policy for Britain, however, Eden was acutely aware that changes would have to be made to the central organisation of defence. Eden had gradually lost confidence in the ability of the Defence Committee to 'provide the general guidance on long term strategy which was required'. He felt that reforms were necessary to allow the Minister of Defence greater power to overcome the inter-service rivalries that had been raging unabated since the end of the Second World War. This was a view shared by the Chancellor of the Exchequer, Harold Macmillan, who had found his six month stint as Minister of Defence between October 1954 and April 1955 a 'queer kind of affair':

> I have no powers yet I am responsible for everything – especially if it goes wrong. The Prime Minister is always busy about defence affairs – on Wednesday the Defence Committee sat under his chairmanship for nearly six hours. (It is true that it could all have been done in 20 minutes). When I ask for a small meeting with the Service Ministers, about 40 or 50 people turn up.[85]

Eden set about the task first by strengthening the power of the Minister of Defence in relation to the service departments. The responsibilities of the Minister of Defence would remain largely unchanged from those outlined in the 1946 *Central Organisation for Defence* but would receive greater powers for seeing that 'the composition and balance of forces within individual Services meets the strategic policy laid down by the Defence Committee'.[86] The Ministry of Defence was also expanding, and in 1955-56, it had 1,204 personnel on its books and a considerable budget of £18,300,000.[87] Although this signalled a gradual erosion of the authority and influence of the service departments, John Baylis argues that a lack of staff support for the Minister of Defence made the task of dealing with those historic institutions as difficult as ever unless the Minister forged a close alliance with the Treasury, and the political leverage that that would bring.[88]

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[85] Cited in Baylis, *Ambiguity and Deterrence*, pp. 206-208.
[86] *Hansard*, House of Commons Debate, Vol. 545, Col. 34, 25 October 1955.
[87] Johnson, *Defence by Committee*, p. 343.
[88] Baylis, *Ambiguity and Deterrence*, pp. 207-208.

Further changes were brought about by the creation of the post of Chairman of the Chiefs of Staff Committee. It will be recalled that this concept had been bandied about the corridors of Whitehall during the 1946 debates on defence reorganisation, but had been rejected as being too radical. However, in-fighting for resources among the Chiefs of Staff, their inability to arrive at a satisfactory long term defence plan, and their general lack of unity on important strategic appreciations, invited intervention from the political leadership.[89] It was hoped that an independent Chairman would be able to reconcile the competing service views that had plagued the Chiefs of Staff Committee since its inception and provide a single voice for the committee at Cabinet discussions. The constitutional position of the Chiefs of Staff was not radically altered, however, as individual service Chiefs could still 'tender his personal advice should he differ from his colleagues'.[90] The Chief of the Air Staff, Sir William Dickson, was the post's first incumbent. Like many of the attempts after 1945 to strengthen the central machinery of defence, these latest reforms were more evolutionary than they were revolutionary.

This new defence organisation would be put to the test during Selwyn Lloyd's attempts to instigate a Long Term Defence Programme (LTDP) between April and November 1955. The new Minister of Defence was encouraged to undertake this review amidst increasing Treasury concerns over the economic health of the nation.[91] This was supported by the Prime Minister who believed that Britain should now cut its coat according to its cloth, the implication being that there was little cloth left.[92] As Lloyd articulated to fellow defence ministers at a meeting of the North Atlantic Council, Britain and her allies were now engaged in a 'long haul' with the Soviet Union, and that long-term considerations must therefore always be kept in mind,

[89] Johnson, *Defence by Ministry*, pp. 45-47.
[90] *Hansard*, House of Commons Debate, Vol. 545, Col. 34, 25 October 1955.
[91] TNA, CAB 129/78, CP(55)184, Overseas Expenditure, memorandum by the Chancellor of the Exchequer, 29 November 1955.
[92] Anthony Eden, *Full Circle* (London: Cassell, 1960), pp. 370-371.

especially in the economic sphere.[93] The LTDP continued the trend that had begun during the 1953 Radical Review exercise of a greater reliance on nuclear weapons. By shifting focus towards nuclear deterrent strategies, it was hoped that defence expenditure on expensive conventional forces designed for prolonged global wars could finally be reduced.

In May 1955, Lloyd set the defence budget at £1,525m. Exploiting the new powers that had been vested in him as Minister of Defence, he indicated that he proposed to allocate the resources himself among the three services in a manner that reflected the nation's new strategic priorities.[94] In descending order of importance, Lloyd argued that these defence priorities were, the strategic nuclear deterrent; the cold war (including the new concept of 'secondary deterrents');[95] and preparations for global war. The development of the strategic nuclear deterrent and the development of guided missiles was where Lloyd believed the United Kingdom could make the most valuable contribution to the NATO alliance.[96] Conversely, those capabilities that would be needed to fight a prolonged war, Lloyd believed was the lowest priority, and where the largest savings could be found.[97] This was a direct attack on the ambiguous 'broken-backed' warfare concept, a hangover from the bargaining that took place during the Chiefs of Staff 1952 strategy review, but which still found support among some sections of the Royal Navy.

The promise of further cuts and rigid strategic priorities laid out by the LTDP had clear implications for the organisational integrity of the services, and once again, they sought to stall and delay the exercise. The Army looked to exploit the technological innovation of tactical nuclear weapons to further its institutional interests in these uncertain times. This was a logical,

[93] NATO, CR(55)44, Meeting of the North Atlantic Council, 11 October 1955.
[94] Baylis, *Ambiguity and Deterrence*, p. 209.
[95] In this context secondary deterrents referred to those capabilities that would protect Britain in the event of nuclear war, such as air defence systems. The idea was that Russia might be deterred from launching a strategic nuclear attack if she believed that the United Kingdom would emerge relatively unscathed.
[96] NATO, CR(55)59, Meeting of the North Atlantic Council, 15 December 1955.
[97] TNA, DEFE 7/963, MISC/M(55)69, Long Term Defence Programmes, 12 July 1955.

and even necessary, development in thinking since NATO had formerly adopted a tactical nuclear posture in November 1954. In June 1955, the War Office stated that it intended to 'make full use of the vastly greater firepower that nuclear weapons are putting into its hands'. To that end, existing organisations and tactics would have to be re-examined so that the Army would be able to fight effectively on the atomic battlefield, and research and development on atomic demolition munitions, guided missiles, helicopters, and armoured fighting vehicles would be accelerated.[98] The civilian leadership hoped that the introduction of tactical nuclear weapons into Army inventories would allow a reduction of conventional manpower. On hearing of the Army's interest in acquiring tactical nuclear capabilities, the Minister of Defence suggested that 'there should be injected urgently into this study the ideas that the re-organised Division should make smaller demands on manpower and equipment'.[99] However, the Army's view was that 'it is not anticipated that any appreciable overall savings in manpower will result while our worldwide commitments remain unchanged'.[100]

The Army's interest in tactical nuclear weapons appeared to find favour with the other services, or at least, did not invite criticism. This might be because it allowed each of the services to protect certain capabilities that it believed was under threat from the LTDP. This is consonant with Clark and Wheeler's suggestion that the arrival of tactical nuclear weapons was 'one of those rare cases where the Services had an opportunity to enhance their abilities to perform existing roles and missions without infringing their rivals' bureaucratic territory'.[101] Indeed, there may even have been universal benefits to be had. The way in which the Chiefs of Staff framed tactical nuclear weapons within the context of strategic priorities is revealing. The

[98] TNA, WO 32/16091, The Long Term Defence Programme, paper by the War Office, 6 June 1955.
[99] TNA, DEFE 7/964, The Long Term Defence Programme, memorandum by the Minister of Defence, n.d. [c. June 1955].
[100] WO 32/16091, The Long Term Defence Programme. This was a view that was expressed habitually as the trials progressed. See, TNA, DEFE 7/964, MISC/M(55)91, Long Term Defence Programmes, 14 September 1955; TNA, DEFE 7/964, MISC/P(55)46, Long Term Defence Programme, memorandum by the Secretary of State for War, 29 September 1955.
[101] Clark and Wheeler, *The British Origins of Nuclear Strategy*, p. 149.

Chiefs agreed with the Minister of Defence that the development of deterrent forces should come as first priority, followed by cold war capabilities in second. However, they believed that the third priority, above global war capabilities, which were now fourth, should be the development of:

> Tactical nuclear weapons and their means of delivery and the equipment necessary to enable our forces to deal with essential tasks in all forms of war short of global nuclear war.[102]

This claim to limited war forces essentially took the place of 'broken-backed' warfare, which had, by now, lost all credibility.[103] The concept of tactical nuclear warfare, on the other hand, possessed a modicum of legitimacy. Since thermonuclear weapons had raised the stakes of waging total war to such frightening levels, the Chiefs of Staff maintained that the use of tactical nuclear weapons in a limited war was therefore not likely to escalate to the strategic nuclear level. Indeed, such was the rapid pace of the development of small-yield nuclear weapons that the Chiefs predicted that within seven years their use would be seen as conventional.[104] There were important geographical distinctions to be drawn, however. While it was possible to envisage the use of tactical nuclear weapons in the Far East or Middle East, the same could not be said for Europe, presumably because for both sides, the strategic stakes were too high and escalation would be inevitable.[105] This logic was wrapped up in the debate on so-called 'graduated-deterrents', which will be assessed in full in the following chapter.

The Chiefs of Staff prepared a paper for the Minister of Defence outlining the strategic implications of the LTDP and reaffirming their version of defence priorities. The Chiefs stressed that the financial limitations imposed by the defence review would render it impossible

[102] TNA, DEFE 7/963, COS(55)51, Long Term Defence Programme, 29 June 1955.
[103] With regards to a conventional phase of fighting after an initial nuclear exchange, a Joint Planning Staff paper stated that 'as it is not possible to foresee with any clarity the military conditions likely to exist then, from the military viewpoint it is wasteful to develop forces solely designed to operate and fight in this period'. TNA, DEFE 7/963, JP(55)67(A)(Draft), Long Term Defence Programme, report by the Joint Planning Staff, 19 July 1955.
[104] DEFE 7/963, COS(55)51.
[105] See the thoughts of the CIGS on this matter in TNA, WO 163/616, AC/M(55)7, 1 September 1955.

to provide for all areas of defence. Therefore, certain strategic risks would have to be taken. As they had done during the 1953 Radical Review exercise, the Chiefs of Staff sought to distance themselves professionally from the proposed cuts. They were keen to emphasise that 'these risks can not be recommended from the military point of view' and offered no clear instructions to government regarding where economies should be found stating only that 'the field in which these risks will have to be taken must be decided by Ministers'.[106] When the paper was discussed with senior ministers two days later Lloyd could do little but advise the Chiefs of Staff that he would give further general instructions on policy that would make it possible for the service departments to work out the detailed implications.[107]

Again, the problem was that the services disagreed fundamentally on certain aspects of strategic policy. The first major divergence was in relation to the nature of a future war. The RAF maintained that a future nuclear war would be short and decisive, while the Royal Navy and Army argued that it would be a long drawn-out affair interspersed with bouts of conventional fighting. This allowed the land and sea services to lay claim to substantial conventional forces, while the RAF pushed for the continued development of the (airborne) nuclear deterrent. The second point of contention was the different attitudes towards NATO. Although all three services agreed that NATO played an important role in the cold warfare, the RAF believed that the British contribution should be reduced, while the Royal Navy and Army argued that the present level was satisfactory and should not be tampered with for political and strategic reasons.[108] On the latter point, the Navy and Army's case was strengthened by the muddling influence of 'secondary deterrents' that had emerged in the Minister of Defence's first attempt to articulate strategic priorities in July. The ambiguity surrounding secondary deterrents was exploited by the senior services to argue that NATO was a vital link in Britain's

[106] TNA, DEFE 7/963, MISC/P(55)27, Long Term Defence Programme, 25 July 1955.
[107] TNA, DEFE 7/963, MISC/M(55)75, Long Term Defence Programmes, 27 July 1955.
[108] TNA, DEFE 7/964, JP(55)Note 19 (Final), Long Term Defence Programme, 4 October 1955.

overall deterrent posture, although the civilian leadership still hoped that some reductions could be made.[109]

To that end, Eden established a group of civilian officials in the spring of 1956, under the chairmanship of the Cabinet Secretary, Sir Norman Brook, to consider 'The Future of the United Kingdom in World Affairs'.[110] This latest review aimed at reducing the level of conventional forces for NATO once and for all. Akin to the 1953 Radical Review, the Chiefs of Staff were deliberately excluded from the group so that ministers could assess Britain's security requirements without fear of inter-service disputes complicating the proceedings.[111] The starting point of the Policy Review was that the H-bomb had fundamentally changed the military situation. Brook and his colleagues explained that the latest JIC assessments[112] showed that the threat of global war with the Soviet Union or China had now reduced considerably, and conventional forces were therefore 'a relatively less important factor in world affairs'. The report also stressed that since the end of the Second World War, Britain had tried to do too much 'with the result that we have only rarely been free from the danger of economic crisis'. Unless something was done to reduce defence expenditure, the report warned, Britain would not be able to play an effective role in world affairs. Since a large proportion of defence expenditure was tied up in conventional forces for NATO, the report suggested that this is where the largest savings could be made. This would require the development of a new strategic concept for NATO as a whole that may be based on the 'idea of the 'plate-glass window' or 'trip-wire''.[113]

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[109] TNA, DEFE 7/965, MISC/P(55)53, Long Term Defence Programme, 13 October 1955.
[110] T. C. G. James, who was Principal Private Secretary of State for Air (1951-1955), believed that the Policy Review was 'one of the best official papers I have ever read' in that it laid much of the theoretical groundwork for later policy reviews under Macmillan and Sandys. See, the Liddell Hart Centre for Military Archives, King's College London [hereafter, LHCMA], T. C. G. James in 'The Move towards the Sandys White Paper of 1957', seminar held July 1988, King's College London [audio cassette].
[111] Baylis, *Ambiguity and Deterrence*, p. 213.
[112] TNA, CAB 134/1315, JIC(56)21(Final), Likelihood of Global War and Warning of Attack, report by the Joint Intelligence Committee, 1 May 1956.
[113] TNA, CAB 134/1315, PR(56)3, Policy Review, The Future of the United Kingdom in World Affairs, 1 June 1956.

In light of the conclusions reached by the Brook report, Eden set up a Policy Review Committee (PRC) to consider the adjustments that should be made in defence policy in view of changing Soviet policy and the economic situation. The PRC was chaired by the Prime Minister and consisted of the Lord President of the Council, the Chancellor of the Exchequer, the Foreign Secretary, and the Minister of Defence. In the event, the Chiefs of Staff also attended many of the deliberations.[114] The PRC considered many papers during their meetings throughout June and July 1956. The main subjects considered were the nuclear deterrent, NATO strategy, the level of British commitment to NATO, home defence, and the future of the Navy.[115] In their papers, the First Sea Lord, Earl Mountbatten of Burma, and the Chief of the Imperial General Staff, Sir Gerald Templer, remained steadfast on the issue of Britain's contribution to NATO arguing that conventional, as well as nuclear, forces would be required to present an effective deterrent to Soviet aggression. The Chief of the Air Staff, Sir Dermot Boyle, maintained that deterrence was provided above all by the RAF's nuclear strike capabilities, and that these developments should continue apace.[116]

On the RAF's claim to a greater reliance on nuclear weapons, a position supported by Ministers, Templer made it clear that while he understood the significance of the H-bomb, these capabilities should be left to the Americans, and that Britain's contribution should be minimal.[117] Templer believed that it was economic and not strategic considerations that were dictating the shape and size of the armed forces and that the Chiefs of Staff were being 'pushed into a dangerous position by being forced for economic reasons into the hurried acceptance of a concept which they were not sure about'.[118] Templer was of the view that when parity had been reached in thermonuclear capabilities between East and West, and the risks of waging

[114] TNA, AIR 41/86, T. C. G. James, *Defence Policy and the Royal Air Force, 1956-1963* (Air Historical Branch, 1987), p. 5.
[115] Ibid., p. 3.
[116] Baylis, *Ambiguity and Deterrence*, pp. 214-15.
[117] TNA, DEFE 32/5, COS(56)70, The Size of the Deterrent, 17 July 1956.
[118] TNA, DEFE 4/88, COS(56)63, NATO Strategy and Level of Forces, 29 June 1956.

global war had thus been raised to unacceptable cost, then this would encourage the Soviet Union to embark upon proxy wars and limited acts of aggression, and that for the first time, the Allies may have to contemplate fighting a limited war in Europe.[119] Inevitably, this would require conventional ground forces based on the continent. The Government's view, however, was that to prevent such aggression, 'what was needed was small and efficient forces equipped with atomic weapons' rather than large conventional formations.[120] This can be seen as a further reiteration of the 'trip-wire' concept that had been suggested by the Brook report. A telegram sent by the Prime Minister to the President of the United States best sums up the official Government position:

> It is on the thermo-nuclear bomb and atomic weapons that we now rely, not only to deter aggression, but to deal with aggression if it should be launched. A 'shield' of conventional forces is still required; but it is no longer our principal military protection. Need it be capable of fighting a major land battle?[121]

The Policy Review, then, continued the shift in British defence policy towards a greater reliance on nuclear weapons, and in the NATO context, even sought to replace conventional manpower with tactical nuclear weapons. The Royal Navy and Army opposed these developments on the grounds that it was economic rather than strategic considerations that were guiding policy decisions, while the RAF worked to keep the status quo. Ultimately, the Policy Review was never implemented because of the disruptions brought about by the Suez crisis. However, the strategic seeds that were sown during the Eden years would finally come to fruition when his successor took power determined to bring the Chiefs of Staff to heel and harmonise defence policy with broader government objectives.

[119] Ibid.
[120] TNA, CAB 134/1315, PR(56)8, Policy Review, 19 July 1956.
[121] Ibid.

The Sandys Review, 1957

When Harold Macmillan took office as Prime Minister in January 1957, the time appeared ripe for a major overhaul of the whole British defence establishment. The Suez fiasco had exposed Britain's conventional weaknesses to the world and undermined her position as a world power. Senior ministers hoped that by continuing with the development of the independent nuclear deterrent, Britain's martial prowess and influence in the world would be restored. In order to achieve this goal, Macmillan realised that his government would have to strengthen the central machinery of defence in order to exert greater political control over the force structures and budgets of the three services. As has been noted, the Prime Minister had witnessed how difficult it had been for the Ministry of Defence to reconcile competing service preferences during his time in office as the Minister of Defence. Although Eden had implemented minor changes to the central organisation of defence, Macmillan sought even greater civilian control over the formulation of national defence policy.

At a Cabinet meeting in December 1956, when Macmillan was then Chancellor of the Exchequer, the Minister of Defence, Anthony Head, painted a rather gloomy picture of what he believed had been the major problems in defence policy-making over the past couple of years. Head was convinced that it was simply not possible to arrive at inter-service agreement on a long-term defence programme. He noted correctly that attempts to do so in the past had merely resulted in short-term compromises and wasteful expenditure. Since Britain could not afford to squander valuable resources on aborted defence programmes, Head argued, greater civilian control over the armed forces was required. He suggested that:

> The outlines of a long-term defence programme and the allocation of resources between the Services should first be agreed by the Minister of Defence with his senior colleagues and it would then be for him to discuss the details with the Service Ministers and the Chiefs of Staff.[122]

[122] TNA, CAB 130/122, GEN 564/1, Long-Term Defence Policy, 18 December 1956.

By suggesting that ministers circumvent the service departments on matters relating to resource allocation, Head was offering a solution to one of the perennial problems of peacetime military planning, and one that was particularly acute in the British case. This was a view shared by Macmillan, who had experienced these difficulties first-hand. When he became Prime Minister in January 1957, he sought to eradicate the problem once and for all informing the services that he 'proposed to bring some reality into the task given to the Minister under Section I of the Minister of Defence Act, 1946'.[123] The man he chose to bring this new reality into being was Duncan Sandys. From Macmillan's point of view, Sandys was a good candidate for the position. He was an experienced minister and had no obvious single service allegiance. More importantly, Sandys had a direct personality that would care little for tribal affiliations and vested interests amongst the services.[124] As will be recalled, it was Sandys, as Minister of Supply, who spearheaded the cuts outlined in the Churchill governments 1953 June Directive.

On 18 January, the Prime Minister issued a directive to the Minister of Defence, the Minister of Supply, and the three service ministers stating that the first task of the new minister was to 'formulate, in the light of present strategic needs, a new defence policy which will secure a substantial reduction in expenditure and in man-power'. To achieve these aims, Sandys was imbued with unprecedented powers to 'give decisions on all matters of policy affecting the size, shape, organisation and disposition of the Armed Forces'. This would include their equipment, supply, research and development, and general service administration. Furthermore, if a service minister wanted to make proposals to the Prime Minister, the Defence Committee, or the Cabinet, it now had to be done through the Minister of Defence via the Chairman of the Chiefs of Staff Committee, who acted in this capacity as the chief of staff to the Minister of Defence.[125]

[123] Harold Macmillan, *Riding the Storm, 1956-1959* (London: Macmillan, 1971), p. 244.
[124] Grove, *Vanguard to Trident*, pp. 197-198.
[125] TNA, CAB 131/18, D(57)2, The Minister of Defence and the Armed Forces, Directive by the Prime Minister, 18 January 1957.

Sandys promised that with these new powers he would be able to instigate considerable cuts in defence expenditure as long as the government and the nation accepted the policy that these economies would entail.[126] Getting the Cabinet on board was one thing; convincing the services was another matter. Sandys proposed to reduce service manpower to 380,000, on the basis of regular recruiting, and to terminate conscription by 1960. The Minister stated that Britain's principal military tasks were to provide minimum forces for overseas security missions in those territories that still fell under Crown control, and to contribute to the deterrent, both nuclear and conventional. Sandys hoped that with just 380,000 men in uniform 'it should be just possible, with difficulty and not without risk, to carry out these tasks'.[127] Although the Chiefs of Staff appreciated that government was forced for economic reasons to undertake certain risks in defence, they made it clear, as their predecessors had done, that 'there are no military or strategic grounds which justify considerable reductions from the resources at present devoted to United Kingdom defence'.[128] The Chiefs were particularly concerned on the effect that such reductions would have on their allies in NATO, SEATO, and the Baghdad Pact, especially with regards to the decision to terminate conscription.[129]

Whereas previously the Chiefs of Staff had been able to take these concerns direct to the Minister of Defence, or even the Prime Minister, restrictions brought about by the new defence organisation meant that they had to articulate their views through the Chairman of the Chiefs of Staff Committee, who would then relay them to government. Sir William Dickson, the first Chairman of the Chiefs of Staff Committee, therefore had the difficult task of explaining to the Minister of Defence the position of the military Chiefs regarding his proposed defence review. Dickson explained carefully to the Minister that the Chiefs of Staff felt that they were not being

[126] TNA, CAB 128/31, CC(57)2, Economic Situation, 21 January 1957.
[127] TNA, DEFE 11/145, Review of Defence Plans, note by the Minister of Defence, 22 February 1957.
[128] TNA, DEFE 5/73, COS(57)34, Long Term Defence Policy, memorandum by the Chiefs of Staff, 5 February 1957.
[129] TNA, DEFE 5/74, COS(57)47, Long Term Defence Policy, memorandum by the Chiefs of Staff, 22 February 1957.

paid due professional respect as the constitutional expert military advisors to the government. In this capacity, they could only consider the proposed reductions in light of the current military environment.[130] In that context, the service Chiefs could do little but emphasise that because of the ongoing cold war, 'it was vital to bring out that the reduction of forces was based on economic grounds and not on strategic considerations'.[131] Again, they stressed the NATO dimension:

> A reduction in the total strength of the forces to 375,000 could not be justified on strictly military grounds. The threat of Communism had in no way diminished, and since the planned reductions in British forces would not, in the event, be counter-balanced by any comparable increases in the forces of the other countries in the Western Alliances, the total forces available for the defence of the free world would be reduced… [Therefore] it should be made clear in the White Paper that the decision to reduce the forces eventually to 375,000 was dictated primarily by economic needs.[132]

Britain's NATO allies also expressed concern about the proposed force reductions amidst fears that such a move by Britain, who was after-all obliged to provide troops under the Paris Treaty, might ignite a chain-reaction among other nations of the alliance leading to a dangerous rundown in military manpower.[133] However, the United Kingdom's representative to the North Atlantic Council explained that Britain's still considerable overseas commitments in many parts of the world required forces in certain strategic areas, such as the Middle East, meaning that a reduction of forces on the continent was unavoidable.[134] The government believed that it approached the problem honestly and frankly, and merely relayed what it believed to be the economic and strategic rationales behind the review to its NATO allies in March 1957.[135] Ultimately, Sandys was determined to push ahead with the review despite concerns from his military advisors and NATO counterparts.

[130] TNA, ADM 205/114, WFD/123, Long Term Defence Policy, Dickson to the Chiefs, 21 March 1957.
[131] TNA, ADM 205/114, COS(57)24, Long Term Defence Policy, 26 March 1957.
[132] TNA, ADM 205/114, CC(57)26, Statement on Defence 1957, 28 March 1957.
[133] NATO, CR(57)11, Meeting of the North Atlantic Council, 26 February 1957.
[134] NATO, CR(57)14, Meeting of the North Atlantic Council, 6 March 1957.
[135] NATO, CR(57)16, Meeting of the North Atlantic Council, 15 March 1957.

A month later his White Paper, *Defence: Outline of Future Policy* was submitted to Parliament in April 1957. The starting point of the paper was that the threat of global war had receded, and that Britain must prepare for a long-haul against Communist subversion and cold war tactics. Military power could only be supported in the long run, the paper explained, with a healthy internal economy and export trade. Therefore, it is 'in the true interests of defence that the claims of military expenditure should be considered in conjunction with the need to maintain the country's financial and economic strength'.[136] Scientific advances in the field of nuclear weaponry, particularly thermonuclear weapons and guided rockets, were also beginning to have a fundamental impact on the formulation of defence policy. The paper argued that since there was no defence against nuclear bombardment from the air 'the overriding consideration in all military planning must be to prevent war rather than to prepare for it'.[137] Therefore, the bulk of the defence effort would now go towards developing a cost effective nuclear deterrent in the form of a lean manned-bomber force supplemented by ballistic rockets. With a greater emphasis placed on the nuclear deterrent, economies could now be found elsewhere. The British Army of the Rhine would be reduced from 77,000 to 64,000 and similar reductions would be made in the Second Tactical Air Force. The former would be equipped with 'atomic rocket artillery' which was hoped would compensate for the loss of manpower.[138] Finally, the paper announced that National Service was to be terminated in 1960.[139]

The 1957 Defence White Paper reflected a clear continuity in British post-war defence planning and united many of the strategic strands that had existed since the early 1950s into a coherent policy of nuclear deterrence. Sir John Slessor, who was one of the chief architects of the 1952 strategy, confirmed soon after the publication of the 1957 Defence White Paper that there was no basic revolution in policy under Sandys and was merely an imitation of what they

[136] Cmnd. 124, *Defence: Outline of Future Policy* (London: HMSO, 1957), p. 1.
[137] Ibid., p. 3.
[138] Ibid., p. 4.
[139] Ibid., p. 7.

had been working on five years earlier.[140] The difference was that Sandys was finally able to bring these ideas into fruition. In large part this was because of the increased powers that had been invested in the office of Minister of Defence. Macmillan's reforms had worked as intended. Sandys was able to control to a far greater extent than his predecessors the allocation of resources amongst the services, and the new organisational framework enabled him to circumvent the service departments and run the defence review through the Ministry of Defence.[141] This represented a major victory for the civilian leadership as they were finally able to impose government policy on the military and instigate radical changes in the size and composition of the armed forces.[142]

The reduced emphasis on conventional forces meant that the Army was to suffer most from the Sandys review. Severe manpower cuts and the termination of National Service would halve the size of the Army over a five year period.[143] On this latter point, the Army was ambivalent. On the one hand, the ending of National Service would allow the Army to return to an all-regular force without having to waste resources on training unenthusiastic national servicemen. Yet, on the other hand, the War Office had to face the uncomfortable reality of disbanding or amalgamating 51 major combat units, 17 of which were well-established infantry regiments with illustrious service records and many hard-won battle honours.[144] The Chief of the Imperial General Staff, Sir Gerald Templer, regarded the whole affair as a disaster for the Army and even considered resigning from his post in protest.[145] Templer's reaction was representative of

[140] John Slessor, 'British Defence Policy', *Foreign Affairs*, Vol. 35 (July 1957), p. 551.
[141] Dorman, 'Crises and Reviews in British Defence Policy', p. 13.
[142] Laurence W. Martin, 'The Market for Strategic Ideas in Britain: The Sandys Era', *The American Political Science Review*, Vol. 56, No. 1 (March 1962), pp. 28-29.
[143] Colin McInnes, *Hot War, Cold War: The British Army's Way in Warfare, 1945-95* (London and Washington, DC: Brassey's, 1996), p. 12. For further information on the decision to terminate National Service see, Martin S. Navias, 'Terminating Conscription? The British National Service Controversy 1955-56', *Journal of Contemporary History*, Vol. 24, No. 2 (1989), pp. 195-208.
[144] William Jackson and Edwin Bramall, *The Chiefs: The Story of the United Kingdom Chiefs of Staff* (Washington, DC, New York, NY, and London: Brassey's, 1992), p. 318.
[145] John Cloake, *Templer, Tiger of Malaya: The Life of Field Marshal Sir Gerald Templer* (London: Harrap, 1985), p. 360.

the other Chiefs, as they viewed with distaste what they believed to be the unconstitutional way in which the Minister of Defence went about his job.[146]

The political leadership was unperturbed, however, at the Chiefs of Staff evident displeasure at this increased civilian involvement in military affairs. Indeed, the friction between the service Chiefs and the Ministry of Defence invited Government to embark on yet another review of the defence decision-making process. Accordingly, in June 1957, Sir Norman Brook was put in charge of yet another ministerial committee to study the problem. Brook began by examining the feasibility of combining the headquarters, administration, and policy control of the three services into a single Department of Defence that would take over the tasks of the service departments and the Ministry of Supply. An integrated defence department along these lines would see the abolition of the Board of Admiralty, and the Army and Air Councils. Although the Chiefs of Staff Committee would survive largely unchanged, the power and influence of the respective Chiefs of Staff would be greatly reduced.[147] The major benefits to be reaped from such an organisation were, in theory at least, twofold. First, unifying the three separate services into one single service would mean that the issue of the Chiefs of Staff disagreeing on major policy issues would be reduced and would go some way to preventing damaging inter-service rivalries. Second, liquidating the existing service ministers and their departments would allow all power of decision on resource allocation and overall policy to be invested in a single minister.[148] Both of these developments would have clear implications in the pursuit of that elusive unified defence policy.

However, in the Brook Committee's final report, which was submitted in December 1957, the concept of uniting the services under a single minister was rejected on account that it would present very real practical difficulties for potentially few advantages. Yet, Brook acknowledged

[146] Richard Way in 'The Move towards the Sandys White Paper of 1957'.
[147] TNA, DEFE 7/1912, Integration on a Functional Basis, report by the Secretary of the Cabinet, 13 November 1957.
[148] Ibid.

that something needed to be done since few people were completely satisfied with the current organisation. The report began with an overview of what the essential functions of a central defence organisation should be:

> i). to formulate a unified defence policy, based on an agreed strategic appreciation of the probable nature of a future war and of the other commitments which our defence forces will have to meet.
> ii). to allocate available resources between the three Services in such a way that the size and shape of the Armed Forces are in harmony with that defence policy, and the balance between land, sea and air is correctly held, and
> iii). to keep the strategic appreciation, and the defence policy based on it, continually under review in order to ensure that it does not become out of date in the developing circumstances of the modern world.[149]

Brook had therefore successfully identified the three areas of defence policy-making that had habitually been the subject of intense difficulties in Britain since 1945. The crux of the problem, the report stated, was that defence programmes and expenditure had not been systematically related to an agreed strategic appreciation of military tasks i.e., it was still not clear whether Britain was planning to deter aggression or was planning to fight a major conventional/nuclear war.[150] As has been shown, this was largely a result of the bargaining and compromises that had occurred within the Chiefs of Staff Committee. In this context, Brook was highly critical of the Chiefs of Staff. The report stated that it was almost impossible for government to secure objective professional military advice from the three services because the vested interests of individual Chiefs makes it difficult 'if advising alone or in a committee of three, to take an inter-Service view which conflicts with that interest'.[151] Nonetheless, the paper conceded that it was unreasonable to expect the Chiefs of Staff alone to find solutions to the immensely intellectually difficult strategic problems of the day. What was required was a more flexible approach that drew on the knowledge of scientists, economists, and politicians, as well as their

[149] TNA, DEFE 7/1912, The Central Organisation for Defence, report by the Secretary of the Cabinet, December 1957.
[150] Ibid.
[151] Ibid.

military colleagues. The report recommended, in characteristically lacklustre fashion, that what was required was a re-affirmation that the primary function of the Ministry of Defence was to assist the Defence Committee and the Cabinet in formulating a unified defence policy.[152]

The final changes made in the central organisation of defence during the 1950s were embodied in a 1958 White Paper. It conformed to the modest changes advocated by the Brook report and announced the introduction of three new features. First, the Defence Committee would be made more 'flexible' so that it could deal more effectively with the myriad strategic problems it was likely to face in the future.[153] Second, a Defence Board would be created to assist the Minister of Defence in the formulation of defence policy and for dealing with inter-service problems. Third, the Chairman of the Chiefs of Staff Committee would now assume the title of Chief of the Defence Staff. It was hoped that this would emphasise the importance of inter-service cooperation and ensure that the Minister of Defence would receive the soundest advice from the service departments.[154] As can be seen, these were not radical changes, suggesting that the notion of a 'guiding hand' was still very much alive.

Conclusions

The years 1945-1957 witnessed a number of changes to the central machinery of defence. The rationale for these reforms stemmed from a desire by the political leadership to gain greater control over service planning. In part, this was a reaction to the austere economic climate in which civilian policy-makers had to operate after 1945. Britain's relative economic decline after the end of the Second World War presented policy-makers with stark choices when it came to the investment of resources for national defence. Therefore, it was essential that policy-makers tailored a defence policy that was both efficient and cost-effective. To achieve these

[152] Ibid.
[153] The White Paper failed to outline exactly how the Defence Committee would be made more flexible.
[154] Cmnd. 476, *Central Organisation for Defence* (London: HMSO, 1958), p. 3.

ends, greater civilian intervention into the military decision-making process was deemed essential. The experience of the Second World War had shown the benefits of a more centralised defence establishment, and political leaders hoped to replicate in peace-time what had worked so well during the war-time years. This required greater control over the allocation of resources to the services, which, in turn, meant that politicians had to become more involved than hitherto with strategic planning and the setting of strategic priorities – the traditional preserve of the military. Indeed, the setting of priorities was a highly politicised act during the 1950s and became the centre point around which the most important debates on commitments, capabilities, and force structures revolved.

Invariably, this impacted upon the relationships between the three services. Faced with drastic budget cuts, the Royal Navy, Army, and RAF were thrown into fierce competition with one another in order to secure what they believed to be a 'fair share' of a dwindling defence budget. This resulted in competing strategies that reflected individual service preferences and specialities. The aim was to influence government in a way that favoured one service capability over its rivals. This often resulted in compromise and bargaining between the Chiefs of Staff that led to wasteful expenditure and ambiguous strategic concepts. To remedy these deficiencies, strategic planning was taken out of the hands of the services and placed in to those of civilian planners, creating a vicious circle of action and reaction between the military and its civilian leaders. It was within this highly politicised bureaucratic environment that British thinking about tactical nuclear weapons took place. This is the subject of the following chapter.

Chapter II

British Defence Policy and Tactical Nuclear Weapons

The advent of tactical nuclear weapons in the early 1950s raised a number of difficult questions for British policy-makers upon which the debate on the military utility of those weapons centred. First, would it be possible to draw distinctions in peacetime between tactical and strategic nuclear weapons? This question was raised by the United States, in their attempts to 'conventionalise' tactical nuclear weapons in the minds of the public, and from within the British defence establishment itself by proponents of 'Graduated Deterrence'. The latter sought to inject greater rationality into British nuclear strategy, and the concept of 'Massive Retaliation' was called into question on both military-strategic and moral grounds, bringing to the fore in British strategic discourse the rationales underpinning a national defence-policy based on nuclear deterrence. The second questioned asked whether it could be possible to employ tactical nuclear weapons in a limited war in Europe or elsewhere without crossing the threshold towards unlimited strategic nuclear war? This remained one of the great unknowns. While it was possible for British planners to envisage the use of tactical nuclear weapons in limited wars in Asia or the Middle East, the prospect of fighting with nuclear weapons in Europe without escalation to the use of strategic nuclear weapons appeared unlikely.

These questions, which required consideration by both the civilian and military leadership, formed the framework within which British policy-makers examined the utility of tactical nuclear weapons and placed them within the wider context of national defence-policy. This chapter argues that through this assessment the official government view of tactical nuclear weapons was that they were simply another layer to the strategic nuclear deterrent, which remained the ultimate insurance policy against armed aggression. The use of tactical nuclear weapons outside of Europe was thought possible in a limited war without automatic escalation,

but in that theatre of operations, their use was widely accepted as precipitating the onset of global thermonuclear war. British policy-makers accepted that tactical nuclear weapons would be employed on the battlefield against military targets at the onset of war, and civilian leaders eager to find economies in defence spending often exploited their deployment alongside the British Army of the Rhine to argue that this would allow a reduction in expensive conventional manpower on the Continent. Ultimately, however, tactical nuclear weapons were seen less as a useful military tool to be made available to commanders in the field and more of a political statement displaying British commitment to European security and the NATO alliance.

The chapter is divided into two sections, each of which is concerned with one of the two topics of debate outlined above. The first section assesses the reaction to requests by the United States that the British government draw distinctions between tactical and strategic nuclear weapons in order to bring it into line with the Eisenhower administration's New Look at defence policy. The second section examines the debate surrounding 'Massive Retaliation' and 'Graduated Deterrence' in the middle 1950s and how various government departments, both civilian and military, understood this challenge to the strategic status quo.

Distinctions Between Nuclear Weapons

The British origins of 'Massive Retaliation' stemmed from the major defence policy review instigated by the Churchill administration in 1952 (see Chapter I). As will be recalled, the then Chief of the Air Staff, John Slessor, was one of the chief architects of the Defence Policy and Global Strategy paper and would become one of Britain's staunchest supporters of strategic nuclear deterrence throughout the strategic debates of the 1950s. He published his 'Massive Retaliation' thesis in book form shortly after his retirement from active military service in 1954, which proved to be extremely influential in policy-making circles in Britain and the United States. Slessor's starting point in *Strategy for the West* was that '*war has abolished itself*

because the atomic and hydrogen bombs have found their way into the armouries of the world'.[1] Just as he and his colleagues on the Chiefs of Staff Committee had argued in 1952, deterrence and not defence should be the primary aim of Western defence policy since the existence of nuclear weapons now made war politically and militarily futile as a meaningful tool of statecraft. Therefore, Slessor advocated:

> We must maintain atomic air power to prevent war; we must therefore – and we can safely – depend upon it as the primary agent for the defeat of our enemy if the deterrent fails; and we must supplement and support it by conventional forces, organized, equipped, and trained on really modern lines…[2]

The primary role of these conventional forces, Slessor believed, was to extinguish cold war conflagrations in limited conflicts. However, if the deterrent were to fail, they would have the essential task in Europe of holding the Red Army as far to the East as possible, fighting a delaying action in order to 'blunt the enemy offensive and give time for air power to take effect'.[3] Slessor believed that scientific developments in modern weapons, and in particular the tactical nuclear weapon, had lent tremendous strength to the defence – improving the chances of the land forces being able to enforce the essential 'pause' whilst the bomber forces plied their trade.[4]

Thus, for Slessor, atomic armed conventional ground forces were not merely an end in themselves, but a means to an end. That end was the immediate and massive retaliation with nuclear weapons on both a tactical level – to keep the Red Army from overrunning Western Europe – and strategically against an aggressor's homeland in the hope that that would provide a quick knock-out blow and bring hostilities to an end. In that context, Slessor advocated the first use of strategic nuclear weapons to respond to any acts of aggression, however limited. Indeed, it was the threat of such massive nuclear retaliation that for Slessor made the deterrent

[1] John Slessor, *Strategy for the West* (London: Cassell & Co., 1954), p. 15 [emphasis in original].
[2] Ibid., p. 49.
[3] Ibid., pp. 73-74.
[4] Ibid., p. 75.

so ‘great’. A. J. R. Groom has suggested that Slessor’s tough, uncompromising resolution to use weapons of such appalling destructive power was not merely the reaction of a ‘hard-boiled militarist, bloodied in the wartime raids on Hamburg or Dresden’ but that his ultimate aim was ‘the abolition of total or general war in the sense that his generation had twice known it’.[5] The central tenant of ‘Massive Retaliation’, then, was that in threatening to initiate, on a magnificent scale, the very process which it sought to avoid, war could be evaded. This logic is what underpinned all official discourse on nuclear strategy in Britain throughout the 1950s. Any attempt to circumvent this policy in a manner that undermined the horrific consequences of nuclear warfare was consequently seen as reducing the overall deterrent effect of nuclear weapons, with ominous implications.

Across the Atlantic, however, American policy-makers were beginning to display a slightly different view on the utility of certain nuclear weapons to their British counterparts. On 15 March 1955, at the height of the First Taiwan Strait Crisis, the U.S. Secretary of State John Foster Dulles informed listeners at a press conference that ‘certain types of atomic missiles were becoming conventional in the United States armed services’ and that such weapons were of a low yield and of great precision.[6] When asked by a correspondent whether the weapons he was referring to were what were ordinarily called ‘tactical atomic weapons’, Dulles responded that that was correct. Thus began a campaign by Dulles to convince public opinion at home and abroad of the moral and military benefits to be reaped by the scientific advances in nuclear technology. The following day President Eisenhower supported the thesis advanced by his Secretary in his weekly press conference stating that when used against strictly military targets he saw no reason why ‘these things [tactical nuclear weapons]… shouldn’t be used just exactly as you would use a bullet or anything else’.[7]

[5] A. J. R. Groom, *British Thinking about Nuclear Weapons* (London: Frances Pinter, 1974), p. 63.
[6] Cited in Dennis Merrill and Thomas G. Paterson (Eds.), *Major Problems in American Foreign Relations, Volume II: Since 1914, 7th Edition* (Stamford, CT: Cengage Learning, 2010), p. 281.
[7] Ibid., p. 282.

On the same day, a diplomatic cable from Washington to the Foreign Office informed British policy-makers of these recent statements. It urged that it was becoming increasingly necessary to make public opinion realise that tactical nuclear weapons could be used within the framework of conventional armaments and minor wars. The Eisenhower administration believed that this was essential since NATO adopted the strategic concept MC 48 a year earlier, which tied its ground forces to the first use of tactical nuclear weapons. The full implications of that decision will be assessed in Chapter IV. The cable concluded with the suggestion that:

> Her Majesty's Government should also consider taking suitable opportunities to make clear the technical and moral justification of the tactical nuclear weapon with which allied forces are now being equipped.[8]

The Deputy Under Secretary of the Foreign Office, P. H. Dean, wrote to General Sir Neville Brownjohn, Chief Staff Officer at the Ministry of Defence, explaining that the American suggestion raised a 'difficult and highly political question' and that the issue should be placed before the Chiefs of Staff as soon as possible so that they could submit a statement to the Cabinet for discussion.[9]

The matter was duly referred to the Chiefs of Staff Committee, who considered the American proposal at their meeting on 1 April 1955. In addition to the regular members of the Committee, the Chiefs of Staff were joined by high-ranking government scientists and delegates from other interested departments of state. Sir William Penney, weapons developer for the recently established Atomic Energy Authority, opened the discussion by stating that technically speaking there could be every gradation of nuclear weapon between the smallest atomic bomb and the largest thermonuclear one, and that there could be no definitive dividing line between the two extremes. The First Sea Lord, Sir Rhoderick McGrigor, brought up the issue of targeting and attacked Dulles' remark about the use of tactical nuclear weapons against

[8] TNA, DEFE 7/2340, Telegram no. 588, Washington to Foreign Office, 16 March 1955.
[9] TNA, DEFE 7/2340, Dean to Brownjohn, 30 March 1955.

military targets arguing that 'this led to the sterile argument of what were military targets'. Vice-Chief of the Air Staff, Sir Ronald Ivelaw-Chapman, questioned the benefits of making public statements about the limited use of nuclear weapons maintaining that it was essential that the Soviet leadership were under no illusion that any aggression on their part would be met immediately with the full weight of allied nuclear capabilities. The Committee therefore agreed that no dividing line could be drawn between nuclear weapons. Any attempt to do this, they concluded, or to give the impression that the use of tactical nuclear weapons was less serious, would serve only to reduce the deterrent effect of nuclear weapons and adversely affect the chances of being able to prevent war.[10]

The Chiefs of Staff therefore opposed the American proposition to make public distinctions between nuclear weapons on both technological and strategic grounds. On receiving the Chiefs recommendations in April 1955 the Cabinet considered that even if it were scientifically and militarily possible to draw the suggested distinctions between nuclear weapons it would be unwise for the West to do so since:

> The possession by the West of a stock of nuclear weapons of all kinds and the ability to deliver them is at present the most important factor in achieving our aim of preventing war. An attempt to divide them into those which are small and therefore morally justifiable and those which are large and therefore immoral would inevitably reduce their deterrent value as a whole.[11]

Thus, for British policy-makers, the real value of nuclear weapons lay not in their utility as conventional, battlefield weapons but in the very appalling destructive capabilities that the Americans were attempting to diminish through their suggestion to categorise tactical nuclear weapons as being something altogether less catastrophic. The Cabinet wanted decision-makers in Moscow to be in no doubt that armed aggression would result in the wholesale destruction

[10] TNA, DEFE 7/2340, COS(55)23, Confidential Annex to the 23rd Meeting of the Chiefs of Staff Committee, 1 April 1955.
[11] TNA, CAB 129/74, C(55)95, Distinction between Large and Tactical Nuclear Weapons, 5 April 1955

of Russia and her satellites as a meaningful entity and not merely limited to the retardation of Soviet fighting capacity, as this passage indicates:

> It would be fatal to give the impression that as long as no hydrogen bomb was dropped on Allied territory, none would be used against Russia, or that the only likely victims of nuclear weapons in a new global war would be the armed forces and not the civilian populations or centres of government and industry.[12]

Both the civilian and military leadership were therefore in agreement that distinctions could not be made between nuclear weapons and that the strategic nuclear deterrent remained the primary safeguard against a future global war. However, in private, the Chiefs of Staff adopted a more Dullesian tone when thinking about tactical nuclear weapons. At their meeting on 29 June 1955, they suggested that the rapid development of tactical nuclear weapons 'would tend perhaps within the next seven years to make the use of these weapons conventional'.[13] Consequently, the Chiefs envisaged the use of tactical nuclear weapons in a limited war without automatic escalation to the use of thermonuclear weapons. Indeed, it was the increase in the destructive power of nuclear weapons brought about by the hydrogen bomb that would allow this to happen since 'the greater the power of the primary deterrent the less likely was it that the use of tactical atomic weapons in limited war would lead to global nuclear war'.[14]

There were important geographical distinctions to be drawn, however. In a report produced by the Joint Planning Staff at the behest of the Chiefs of Staff after their deliberations, it stated that:

> We can envisage, therefore, a limited war involving the use of tactical atomic weapons taking place in the Far East or perhaps in the Middle East, but it would not be possible for a limited war to take place in Europe without developing into global war.[15]

[12] Ibid.
[13] TNA, DEFE 7/963, COS(55)51, Confidential Annex to the 51st meeting of the Chiefs of Staff Committee, 29 June 1955.
[14] Ibid.
[15] TNA, DEFE 4/78, JP(55)61(Final), Long Term Defence Programme, 8 July 1955.

The decision to use tactical nuclear weapons to support military operations would therefore reflect the nature of the war being fought. While it was possible to imagine their limited use in areas on the periphery of Europe, presumably against an enemy that had little or no nuclear capabilities with which to retaliate, the same could not be said for the European theatre itself because of the high strategic and political stakes involved. In the Middle East it was presumed that the most likely cause of war would stem from the on-going Israeli-Palestinian conflict which the United Kingdom, in view of her treaty obligations, would be immediately involved. It was believed that this conflict could be localised and that the employment of tactical nuclear weapons would be unlikely. However, in the Far East, if Communist China sought to fulfil her territorial gains in the region by resorting to war, the United Kingdom might be forced to go to war either to protect her interests or to support her ally, the United States, who would almost definitely use tactical nuclear weapons.[16] The Chief of the Imperial General Staff, Field Marshal Sir John Harding, believed that the Far East was the only theatre in which a limited tactical nuclear war could be a possibility and that the Army should prepare for nuclear operations in that region.[17]

Henry Kissinger was later to reject the geographical distinctions on the use of nuclear weapons in his 1957 treatise, *Nuclear Weapons and Foreign Policy*, arguing that if distinctions could be made in 'peripheral wars' then similar distinctions could be made in European wars.[18] Yet, as Clark and Wheeler have pointed out, what Kissinger failed to realise was that escalation in war is not merely a mechanical process, but reflects the political stakes involved; for Britain, the dynamics of a peripheral war differ markedly from that of a European war.[19] This was the view shared by the military authorities in Britain as evinced in their deliberations on the subject

[16] TNA, DEFE 7/963, MISC/P(55)27, Long Term Defence Programme, 25 July 1955.
[17] TNA, WO 163/616, AC/M(55)7, Minutes of the 150th meeting of the Army Council, 7 September 1955.
[18] Henry Kissinger, *Nuclear Weapons and Foreign Policy* (New York, NY: Harper, 1957), p. 285.
[19] Ian Clark and Nicholas J. Wheeler, *The British Origins of Nuclear Strategy, 1945-1955* (Oxford: Clarendon, 1989), p. 222.

in the summer of 1955. In the same year, a letter sent to *The Times* by the influential strategist, Sir Basil Liddell Hart, warned against the use of tactical nuclear weapons because of the risks of escalation to strategic nuclear war, even in theatres on the periphery of Europe. Citing practical reasons, he argued that:

> It is hard to draw, and even harder to maintain, a dividing line between "tactical" and "strategical" action with such weapons, so it is extremely doubtful if they can be used without precipitating all-out war.[20]

For Liddell Hart, the existence of the H-bomb provided the ultimate deterrent against full-scale armed attack because of its suicidal nature. Therefore, the only military risk would come from guerrilla operations combined with political subversion and local advances into remote non-vital areas. Consequently, he believed:

> To arm [conventional forces] with atomic weapons is to destroy the case for maintaining them. In that for they would increase the risk of spreading a local conflict into a universal conflagration…[21]

No further statements were made by the United States on the issue of making distinctions between nuclear weapons until Dulles made reference in a speech on 6 December 1955 to 'selective retaliatory power', the implication being that the application of nuclear weapons could be limited to certain targets and particular situations. The Foreign Office advised that government officials should say no more on the subject, hoping perhaps that the matter would fade away, and if asked they should refer to a statement on the issue made by the Chiefs of Staff who had recently assessed the effectiveness of nuclear deterrence at their meeting on 15 December 1955.[22] In the subsequent report, which was submitted to the Foreign Secretary and Minister of Defence the following day, they reaffirmed their views on the unfeasibility of

[20] Cited in Groom, *British Thinking about Nuclear Weapons*, p. 74
[21] Ibid., p. 74.
[22] TNA, FO 371/123118, ZE 112/56, Larger and Smaller Nuclear Weapons, 7 January 1956.

making distinctions between nuclear weapons and recommended that any discussion on the subject should not go beyond a statement that:

> We were determined to resist aggression wherever it may occur and that we would use whatever weapons were appropriate to end the conflict rapidly and to prevent the war spreading.[23]

This statement suggests that the Chiefs of Staff were prepared to move, however tentatively, towards statements in public that tactical nuclear weapons could be used if their application achieved the required war aims without unnecessary escalation to the use of strategic nuclear weapons. However, by the beginning of 1956, the British defence establishment would come under increasing pressure to delineate clearly in public between different types of nuclear weapons. This time it was not from foreign allies but from within its own defence community. An alternative theory of nuclear strategy, destined to be known as 'Graduated Deterrence', emerged as a rival to that of 'Massive Retaliation' and the whole notion of a national strategy based on massive nuclear retaliation was called into question.

Graduated Deterrence versus Massive Retaliation

The most vocal critic of government nuclear strategy was Rear-Admiral Sir Anthony Buzzard, who held the post of Director of Naval Intelligence from 1951 until his retirement from active military service in 1954. As will be recalled from the previous chapter, as early as 1953, at the height of the Churchill governments Radical Review of defence policy, Buzzard challenged the notion set out in the Minister of Defence's June Directive that the first six weeks of global war would be decisive and that priority should therefore be given to the development of forces essential for survival in that opening phase. He questioned the presumption that US strategic bombers would be able to deliver a knock-out blow against the Soviet Union with their nuclear

[23] TNA, DEFE 5/63, COS(55)341, The Effectiveness of Nuclear Deterrence, 16 December 1955.

payloads. Even if they possessed such capabilities, Buzzard enquired pessimistically: 'If we really believe that Russian morale will crack in six weeks, what are the prospects for this country?'.[24] Even more worrying for Buzzard, however, was that such a policy would tie the United Kingdom irrevocably to the first use of strategic nuclear weapons against centres of populations and industry at the onset of a future war. 'To have our hands tied in this way indefinitely' he believed 'is surely most unsound'.[25]

These were the military-strategic considerations upon which Buzzard's critique of 'Massive retaliation' centred during the 1950s. A devout Anglican, Buzzard also wrestled with the moral implications of nuclear war. After his retirement he worked closely with various defence and disarmament commissions for the World and British Councils of Churches and was instrumental in providing a link between churchmen and strategists on matters of nuclear strategy.[26] By the middle 1950s, Buzzard had generated enough interest in his ideas from both Clergymen and individuals in the influential 'Commentators Circle'[27] that his alternative theory of 'Graduated Deterrence', as it was destined to be known, was thrust into the public domain and Whitehall policy-making circles. Intimately linked with the use of small yield nuclear weapons, the manner in which 'Graduated Deterrence' was received and assessed by the British defence establishment shines further light on official British thinking about tactical nuclear weapons.

Foreshadowing a period of pointed criticism of British nuclear weapons policy, the Royal Institute of International Affairs, Chatham House, hosted on 9 November 1955 a debate between Buzzard, Slessor, and the German political scientist Richard Lowenthal on the relative

[24] TNA, ADM 205/89, DNI 8529, Why Only Six Weeks for our Priority Requirements?, 6 July 1953.
[25] Ibid.
[26] John Baylis, 'Anthony Buzzard' in John Baylis and John Garnett (Eds.), *Makers of Nuclear Strategy* (London: Pinter, 1991), p. 136.
[27] This was the name given to an influential group of defence commentators in Britain that included important individuals such as Sir Basil Liddell Hart, John Slessor, Richard Crossman, George Wigg, John Strachey, and Anthony Buzzard. See, Laurence W. Martin, 'The Market for Strategic Ideas in Britain: The "Sandys Era"', *American Political Science Review*, Vol. 56, No. 1 (March 1962), p. 34.

merits of 'Massive Retaliation' and 'Graduated Deterrence'.[28] Buzzard attacked the policy of 'Massive Retaliation' as being too drastic and inflexible to deal with the myriad threats that Britain might face during the burgeoning Cold War, arguing that:

> Increasingly we are getting into a position where, in effect, we shall be forced to threaten, and if necessary initiate, the destruction of civilization in the event of any measure of aggression too powerful for our small conventional forces to combat.[29]

Buzzard believed that the hands of the West were tied to either submitting to numerically superior conventional Soviet forces or else initiating thermonuclear war, with all its horrifying consequences. Furthermore, with Soviet-US nuclear parity drawing ever closer, the Rear-Admiral was concerned that American decision-makers might be reluctant to unleash the Strategic Air Command because of the fear of retaliation in kind, and that therefore the Kremlin might call a bluff on the threat of massive nuclear retaliation.[30] Buzzard consequently proposed that his policy of 'Graduated Deterrence' might provide the West with an intermediate response capability to deal with those threats that were too large for Allied conventional forces to cope with but too small to warrant the strategic use of nuclear weapons. This response would rest on the tactical use of small-yield nuclear weapons to counterbalance the mass of Soviet manpower but, importantly, without recourse to the strategic use of nuclear weapons. In order to keep such a conflict limited and to prevent automatic nuclear escalation, Buzzard argued that distinctions between strategic and tactical nuclear weapons, and between different types of military and civilian targets, would have to be made in peacetime. By so doing, the West could exploit its tactical nuclear assets without provoking the fear of strategic nuclear retaliation.[31]

It would not be until late 1955, however, until Buzzard's challenge to the strategic status quo caught the attention of government officials by way of an article he wrote for the

[28] The debate was published in article form the following year in *International Affairs*.
[29] Anthony W. Buzzard et al., 'The H-Bomb: Massive Retaliation or Graduated Deterrence?', *International Affairs*, Vol. 32, No. 2 (April 1956), p. 148.
[30] Ibid., pp. 149-150.
[31] Ibid., pp. 148-149.

Manchester Guardian outlining his new theory of nuclear strategy. In it, he made public his views that 'Graduated Deterrence' would not only benefit the West militarily, since it allowed the exploitation of tactical nuclear firepower, but was also morally superior to 'Massive Retaliation' because it would limit wars (in weapons, targets, area, and time) with the minimum force necessary to deter or repel aggression, and might bring an adversary to the negotiating table without seeking total victory or unconditional surrender.[32] The moral dimension of 'Graduated Deterrence' was one of the driving forces behind Buzzard's advancement of the concept, and coloured all of his thoughts on the matter. The following month the Rear-Admiral wrote to the Editor of the *Economist* arguing that the adoption by the West of a policy of 'Graduated Deterrence' would help to reduce the horrors of war and consequently provide greater validation to such a defence posture in the eyes of allies and neutrals since 'we would be practising the moral principles we profess to defend'.[33] Sir Neville Brownjohn informed the Chiefs of Staff of the disarmament articles who agreed on 21 November 1955 to examine them.[34] They were subsequently referred the following day to the Joint Planning Staff for further assessment and the preparation of a report.[35]

The aim of the paper, which took three weeks to complete, was to discover 'whether the Allied deterrent to war can be strengthened by any form of graduated deterrence'.[36] In the context of the ability of nuclear weapons to deter global war, the Joint Planning Staff argued that any declaration to limit the size or type of weapon for use in such a conflict would serve only to 'sow doubt in the Russian mind about our determination to use them if attacked and the deterrent value of these weapons would thereby be reduced'.[37] On the issue of limited war, the

[32] Anthony Buzzard, 'Graduated Deterrence Instead of the Bomb Alone', *Manchester Guardian*, 31 October 1955, p. 6.
[33] Anthony Buzzard, 'Graduated Deterrence', *Economist*, 19 November 1955, p. 647.
[34] TNA, DEFE 4/81, COS(55)95, Minutes of the 95th meeting of the Chiefs of Staff Committee, 21 November 1955.
[35] TNA, DEFE 4/81, COS(55)96, Minutes of the 96th meeting of the Chiefs of Staff Committee, 22 November 1955.
[36] DEFE 5/63, COS(55)341.
[37] Ibid.

joint planners thought that Buzzard's thesis – that a threat to employ massive retaliation against limited acts of aggression could be taken as bluff by the Soviet Union – appeared to be 'born of some confusion of thought'.[38] Rather, they believed that should the West use nuclear weapons against a Soviet satellite, for example, in the context of limited war, then the implied threat of H-bombing Russia proper if aggression continued would be enough to prevent the conflict from spreading. Furthermore, the Joint Planning Staff held practical objections to drawing distinctions between strategic and tactical nuclear weapons since the use of both would be necessary from a war-fighting point of view to halt a Soviet advance:

> A determined Communist drive would only be stopped by nuclear attack, not only on targets close to the front line of the land armies, but also on airfields, communication centres, bases and perhaps cities, many of them remote from the front line.[39]

It appeared, then, that 'Graduated Deterrence' found little support from the military authorities. This is not surprising considering the sceptical response given to the American proposition to draw distinctions between nuclear weapons. The retired Rear-Admiral appeared unfazed by the rebuff, however. A fervent Christian and regular churchgoer, Buzzard had promoted his ideas to the bishop of his diocese, Dr George Bell, in an attempt to raise awareness of his dilemma and to advertise the benefits of his new strategic concept. The Bishop of Chichester had challenged the morality of strategic bombing during the Second World War and was actively engaged in thinking about the ethics of nuclear war in this troubling new world.[40] Bell had recently contributed a chapter to a pamphlet published by the National Peace Council dealing with the moral issues of nuclear war.[41] On 26 December 1955, the Bishop wrote to the newly appointed Foreign Secretary, Selwyn Lloyd, to say that he and Buzzard had been in 'close

[38] Ibid.
[39] Ibid.
[40] See, for example, one of the Bishop's diatribes in the House of Lords, *Hansard*, House of Lords Debate, Vol. 130, Cols. 737-745, 9 February 1944.
[41] John E. Roberts and George Bell (Eds.), *Nuclear War and Peace: The Facts and the Challenge*, *Peace Aims Pamphlet No. 60* (National Peace Council: London, 1955).

touch' on the matter of 'Graduated Deterrence' and that he also wished to pass on an advanced copy of the National Peace Council pamphlet to the Foreign Office.[42] Akin to Buzzard, Bell argued against Massive Retaliation as a viable strategic concept for the United Kingdom on both strategic and moral grounds. He argued that since the West was bound to use the minimum force necessary to achieve their objects it could never be right to use the hydrogen bomb against predominantly civilian targets. Conversely, Bell believed that the use of tactical nuclear weapons against military targets may be justifiable and that the idea that such use in limited war would escalate to all-out strategic nuclear war should be repudiated.[43] P. H. Dean replied to the Bishop's letter stating simply that:

> We have these issues constantly in our minds when dealing with the immediate practical aspects of the problems posed by the existence of these weapons. They are not easy and I am very conscious indeed of what is at stake.[44]

The following month saw a flurry of activity by proponents of 'Graduated Deterrence', spurred on by an offer from Chatham House to provide facilities for Buzzard and a small study group to examine his theories. The other members of the group were Richard Goold-Adams, former editor of *The Economist* and a leading figure at Chatham House, the distinguished physicist P. M. S. Blackett, and Denis Healy, then Labour Party defence spokesman and future Secretary of State for Defence.[45] On 18 January, Buzzard articulated his thesis more succinctly than hitherto in a note which duly arrived at the Foreign Office shortly after. Buzzard began by saying that the recent rhetoric emanating from the Eisenhower administration throughout the previous year suggested that 'Graduated Deterrence' was now *de facto* accepted in the United States. The Rear-Admiral argued, however, that more should be done publicly in peacetime, beyond the mere general statements being made by Dulles, to establish clear distinctions

[42] TNA, FO 371/123118, ZE 112/7, Bishop of Chichester to Foreign Secretary, 26 December 1955.
[43] TNA, FO 371/123118, ZE 112/7, Confidential Minutes, 5 January 1956.
[44] TNA, FO 371/123118, ZE 112/7, Deputy Under Secretary to the Bishop of Chichester, 9 January 1956.
[45] Michael Howard, 'IISS – The First Thirty Years: A General Overview', *The Adelphi Papers*, Vol. 29, No. 235 (1989), p. 11.

between tactical and strategic nuclear weapons.[46] Contrary to the views of the Chiefs of Staff and the Cabinet, Buzzard believed that drawing distinctions in peacetime between nuclear weapons would actually strengthen rather than diminish their deterrent effect since:

> It is better for our deterrent to be *reasonably* unprofitable in its consequences to the aggressor, and *certain* to be applied, than for it to be *disastrous* in its consequences but *uncertain* to be applied.[47]

Thus, for Buzzard, stating in peacetime that tactical nuclear weapons might be used to resist limited acts of aggression, but that this would not necessarily result in automatic escalation to the use of mutually destructive strategic nuclear weapons, would make the deterrent more credible.

By this time, Graduated Deterrence was beginning to enter the public discourse on British nuclear weapons policy. In a January 17 article in the *Manchester Guardian*, Denis Healey argued that the value of the deterrent was gradually eroding as Soviet nuclear capabilities advanced and therefore questioned the willingness of the United States to use strategic nuclear weapons to annihilate Russian cities if that also meant risking retaliation in kind. He even went so far as to say that since the indiscriminate use of thermonuclear weapons would involve grave dangers to the human race 'no rational Government is likely to initiate it as a deliberate act of policy'.[48] Akin to Buzzard, Healey advocated drawing distinctions in peacetime between tactical and strategic nuclear weapons since this would convince the Soviet Union that:

> We are in a position to halt any military aggression she may contemplate by a form of retaliation which we shall not hesitate to employ, because its cost is proportionate to the importance of the issue at stake.[49]

[46] TNA, FO 371/123119, ZE 112/48, Should Distinctions between the Tactical and Strategic use of Nuclear Weapons be Established Publicly?, 18 January 1956, p. 1.
[47] Ibid., p. 3. [emphasis in original]
[48] Denis Healey, 'Can Warfare be Limited? Small Bombs and Large', *Manchester Guardian*, 17 January 1956, p. 6.
[49] Ibid., p. 6.

Again, the emphasis was on instilling greater credibility in the nuclear deterrent posture by providing decision-makers with the capabilities for a graduated response to armed aggression. Six days after the Healey article was published, the strategic thinker Stephen King-Hall wrote to the editor of the *Manchester Guardian* arguing that Healey's arguments did not 'hold water'. King-Hall felt it was folly to attempt to distinguish in peacetime between the tactical and strategic use of nuclear weapons because of practical reasons. He mirrored the argument of that made by the First Sea Lord during the Chiefs of Staff deliberations on the subject that it would be impossible to draw clear dividing lines between civilian and military targets, providing the example:

> Suppose an enemy advances westward against NATO troops and the latter use atomic weapons on the battlefield. Those troops are supplied through Antwerp and it is hard from a military point of view to deny that the base and lines of communication of troops are part of the battlefield. Would not the enemy naturally drop an H-bomb on Antwerp? This action would probably lead to an allied H-bomb descending on (say) an enemy oilfield.[50]

In addition to pressure from defence commentators to consider 'Graduated Deterrence' as an alternative strategic concept to 'Massive Retaliation', the Prime Minister was himself pressed on the issue by yet another clergyman, this time the senior bishop of the Church of England, the Archbishop of Canterbury, Geoffrey Fisher. The Archbishop urged the government to take action in the field of disarmament and nuclear warfare so that the situation could be kept under 'moral control'. Fisher opposed the concept of massive retaliation with thermonuclear weapons, especially when the targeting of civilians was involved, and backed the Buzzard thesis that there should be made in public distinctions between the 'indiscriminate', 'suicidal', and 'universal' H-bomb and the tactical atomic bomb of 'limited' and 'localised' power. By so doing, he hoped that 'the evil of the H-bomb might be circumvented and finally forgotten and

[50] Stephen King-Hall, 'The Tactical Bomb', *Manchester Guardian*, 23 January 1956, p. 6.

got out of mind'.[51] The Prime Minister replied to the Archbishop the next day stating matter-of-factly that the Cabinet had already discussed such difficult questions and had arrived at the conclusion that Britain must continue to possess the deterrent of the H-bomb.[52]

In private, however, Foreign Office officials poured scorn on Fisher's foray into nuclear issues. The Assistant Under-Secretary of State for Foreign Affairs, I. T. M. Pink, believed that the Archbishop's desire to simply forget that the H-bomb existed and focus instead on tactical nuclear weapons of limited power was evidence of muddled thinking since:

> It seems to me that the Archbishop is confusing the H-bomb with the Devil. But surely the continued existence of the H-bomb is as necessary to the Archbishop's thesis as the continued existence of the Devil is to the Church of England? For it is essential to the theory of 'graduated deterrence' that the H-bomb should remain in the background as the ultimate sanction. If so, it can by no means be forgotten or put out of mind.[53]

Pink also attacked Buzzard's suggestion that distinctions should be drawn in peacetime between tactical and strategic nuclear weapons, and reaffirmed the official view of the Cabinet and the Chiefs for Staff, which remained unchanged,[54] that this would serve only to undermine the deterrent:

> The whole advantage of any deterrent, be it the H-bomb, hanging, the headmaster's cane or the fear of hell-fire, is that you do not know what risks you are likely to run. It is the fear of the unknown which prevents many people from wrong-doing.[55]

This 'fear of the unknown' which Pink believed to be essential criteria for an effective deterrent reinforces Beatrice Heuser's argument that British governments throughout the 1950s were purposely ambiguous regarding their nuclear targeting choices so as to keep the Soviet

[51] TNA, FO 371/123119, ZE 112/39, Archbishop of Canterbury to the Prime Minister, 23 January 1956.
[52] TNA, FO 371/123119, ZE 112/39, Prime Minister to Archbishop of Canterbury, 24 January 1956.
[53] TNA, FO 371/123119, ZE 112/39, Confidential Minutes, 1 February 1956.
[54] TNA, FO 371/123119, ZE 112/49, Gen. Sir Neville Brownjohn to P. F. Hancock, 23 January 1956.
[55] FO 371/123119, ZE 112/39, Confidential Minutes.

leadership in constant speculation as to what the primary strategic targets were – centres of power or cities.[56]

At the same time that the Foreign Office were discrediting the concept of 'Graduated Deterrence', an article written by Buzzard on the subject appeared in *World Politics*, which was the first time that the theory was articulated fully in written form publicly. In it Buzzard launched a broadside against 'Massive Retaliation' arguing that it did not meet the requirements of a rationale defence policy since 'it threatens to destroy civilization as a result of any aggression too powerful for our small conventional forces to handle'.[57] Buzzard again made his clarion call for the Western powers to declare publicly, without waiting for Soviet agreement, distinctions between tactical and strategic nuclear weapons. This would allow the option, when threatened with limited aggression, of saying to the prospective aggressor:

> If you do attack, we will, if necessary, use atomic and perhaps chemical weapons against your armed forces. But we will not, on this issue, use hydrogen or bacteriological weapons at all, unless you do, and we will not use any mass destruction weapons against centres of population, unless you do deliberately.[58]

Liddell Hart agreed that a public announcement of a policy of 'Graduated Deterrence', which was based on the principle of applying the minimum force necessary to repel aggression, would assure the Soviet leadership that the use of strategic nuclear weapons would only be in the last resort and that limited wars of the Korea type could be contained without automatic escalation to thermonuclear war. Liddell Hart did not even believe that an agreement was needed since all that would be required was that the policy and practice be sufficiently clear that mutual limitation would be likely.[59]

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[56] Beatrice Heuser, *The Bomb: Nuclear Weapons in their Historical, Strategic and Ethical Context* (London and New York, NY: Longman, 2000), p. 87.
[57] Anthony W. Buzzard, 'Massive Retaliation and Graduated Deterrence', *World Politics*, Vol. 8, No. 2 (January 1956), p. 228.
[58] Ibid., p. 229.
[59] Basil Liddell Hart, *Deterrent or Defence: A Fresh Look at the West's Military Position* (London: Stevens & Sons, 1960), pp. 60-61.

Agreeing with Liddell Hart, Buzzard believed that the option of imposing limitations on the use of nuclear weapons was fundamentally right from the moral point of view in that the West should not cause, or threaten to cause, more destruction than was necessary.[60] Furthermore, from a political angle, he argued that a policy of 'Graduated Deterrence' would be more credible since it provided an intermediate level of deterrence against limited acts of aggression and, because it appeared less drastic than 'Massive Retaliation', could help to build up trust, reduce tension, and might lead the way to disarmament.[61] From a military point of view, Buzzard stated that both sides would gain enormously on an absolute basis from a policy of 'Graduated Deterrence' because neither could target the headquarter cities, communication centres, industry, and ports of the other. However, he posited that the West would gain on a relative basis from this since the Soviets would be unable to destroy the key ports on which the development and supply of so much of the Allied fighting potential depended, especially in the crucial opening stages of a future war.[62] Finally, Buzzard argued that compared with 'Massive Retaliation', 'Graduated Deterrence' provided better value for money; under the latter concept, tactical nuclear forces, which were beginning to be established in NATO would become redundant if any act of aggression initiated the first use of strategic nuclear weapons from the outset.[63]

Despite this public promulgation of his theory, Buzzard's concept of 'Graduated Deterrence' again failed to garner support in official circles. Conservative MP, Sir Richard Sharples, wrote a concerned letter to his party colleague Anthony Nutting, the Minister of State for Foreign Affairs, arguing that the great advantage of the possession of the H-bomb was that it had made conventional war impossible because of the possibility that it might be used by either side and that by surrendering such a deterrent 'Graduated Deterrence' again made war

[60] Buzzard, 'Massive Retaliation and Graduated Deterrence', p. 229.
[61] Ibid., p. 230.
[62] Ibid., p. 231.
[63] Ibid., p. 232.

possible.[64] Nutting replied that Buzzard had indeed been 'badgering Ministers and officials in the Foreign Office and Ministry of Defence about his pet thesis of graduated deterrence for a very long time'. The Minister explained that the Foreign Office had given much thought to the Rear-Admiral's ideas but this had not changed their view, which was also that of the political and military leadership, that making distinctions between tactical and strategic nuclear weapons would undermine the deterrent effect of those weapons.[65]

The Minister of Defence, Sir Walter Monckton, attempted to lay rest to the issue during a defence debate in the House of Commons. He informed the House that it was possible to imagine circumstances where local aggression might be met with local retaliation with tactical nuclear weapons and that this would not necessarily lead to full-scale global thermonuclear war.[66] However, he reaffirmed the official line that it would not be practical policy for any government to establish in peacetime the circumstances in which it would use some weapons and not others since:

> Any attempt to make a definition of that kind in advance could hardly be to our advantage. Indeed, it might help others, who may be pondering on the question of whether they could take risks, to see how far they might go without bringing down upon them the ultimate deterrent. I think an attempt to define in advance and to lay down hypothetical cases is doomed to failure.[67]

Proponents of 'Graduated Deterrence' were not completely opposed in political circles, however. The day after Monckton refuted 'Graduated Deterrence' in the House of Commons, MP Mr Brown defended the concepts of Buzzard and Healy. Brown informed listeners that there was little to lose in adopting the policy of 'Graduated Deterrence'. His logic was that the areas in which tactical nuclear weapons might be used to counterbalance Allied inferiority in

[64] TNA, FO 371/123118, ZE 112/30, Sir Richard Sharples to Anthony Nutting, 1 February 1956.
[65] TNA, FO 371/123118, ZE 112/30, Anthony Nutting to Sir Richard Sharples, 9 February 1956.
[66] *Hansard*, House of Commons Debate, Vol. 549, Col. 1035, 28 February 1956.
[67] Ibid.

conventional forces, such as Western Europe, would be of such strategic importance that if the Allies were being defeated then the strategic nuclear deterrent would be unleashed anyway.[68]

Nonetheless, the government was not budging and Anthony Nutting wrote to Anthony Head, the Secretary of State for War, informing him that Monckton had now dealt with the issue fully at the defence debate on 28 February and that Buzzard was to be told firmly that he should cease from continuing to discuss the matter with the Foreign Office.[69] Nutting duly informed Buzzard that:

> We think that your papers are really a matter for the defence experts and we should prefer that you should go into this question with them rather than us. I realise that your proposals have political as well as defence implications, but as Harold Macmillan said in his letter, Ministers must be guided in these matters by the views of the Chiefs of Staff.[70]

A week after this letter was written Buzzard had another article published in *The Spectator*. The article took account of the new Defence White Paper of 1956, published in February, which stated that the use of nuclear weapons in limited wars could not be excluded.[71] Buzzard conceded that UK policy was veering closer to his policy of 'Graduated Deterrence', but that the recent defence debate in the House of Commons had not clarified the issue much since there was no mention of tactical nuclear weapons or of any grading of nuclear weapons or selection in their use. He went on to argue for the adoption of the second half of his thesis that distinctions should be made in peacetime between tactical and strategic nuclear weapons.[72] Again, the official view was that it stood to reason that the Western powers would only use a proportionate amount of force and that H-bombs would only be used out of military necessity. The Foreign Office noted that Buzzard had had this impressed upon him many times but that

[68] *Hansard*, House of Commons Debate, Vol. 549, Cols. 1205-1206, 29 February 1956.
[69] TNA, FO 371/123120, ZE 112/65, Anthony Nutting to Anthony Head, 1 March 1956.
[70] TNA, FO 371/123120, ZE 112/65, Anthony Nutting to Anthony Buzzard, 1 March 1956.
[71] Cmd. 9691, *Statement on Defence* (London: HMSO, 1956), p. 4.
[72] Anthony W. Buzzard, 'Graduated Deterrence – The Next Step', *The Spectator*, Vol. 196, No. 6663 (March), 1956, pp. 305-306.

'he is so dazzled by his theories as to be blind to other ideas'.[73] It was clear that officials were becoming impatient with Buzzard. The last part of Walter Monckton's opening speech in the defence debate was, according to one Civil Servant at the Foreign Office, 'specifically devoted to shooting down Admiral Buzzard's views' while adding despairingly that he 'appears to be unsinkable'.[74]

Buzzard replied to Nutting's letter not only explaining that he felt that his theory of 'Graduated Deterrence' had political implications but of his deep concern of the relative influence of the Foreign Office on current defence policy, criticising that the strategy of 'Massive Retaliation' had never really matched the political situation.[75] The Foreign Office was not pleased, however, with the Rear-Admiral's attack on its implied lack of coordination with the military authorities. A senior official thought that 'Foreign Office influence on Defence Policy is none of Sir A. Buzzard's business' and that he should be informed tactfully that the department did not wish to discuss the matter of Graduated Deterrence with him again.[76] Buzzard was subsequently told in April 1956 that the Foreign Office was indeed intimately concerned with the political aspects of defence policy and that 'you can rely on them to make their views known to the Ministry of Defence as necessary'.[77] He was advised to send all future correspondence to the military authorities.

Another attack on 'Graduated Deterrence' came a month later in the form of an article for the *Bulletin of the Atomic Scientists* authored by Slessor in which he reaffirmed his views on the primacy of strategic nuclear weapons – the 'Great Deterrent' – in Western defence policy. Slessor argued, as he had in 1954, that the advent of the H-bomb had brought in its wake a

[73] TNA, FO 371/123121, ZE 112/82, Confidential Minutes, 14 March 1956.
[74] TNA, FO 371/123121, ZE 112/82, Confidential Minutes, 15 March 1956.
[75] TNA, FO 371/123121, ZE 112/102, Anthony Buzzard to Anthony Nutting, 25 March 1956.
[76] TNA, FO 371/123121, ZE 112/102, Confidential Minutes, 9 April 1956.
[77] TNA, FO 371/123121, ZE 112/102, D. S. L. Dodson to Anthony Buzzard, 18 April 1956.

revolution in strategy in that total war had abolished itself as a meaningful tool of policy.[78] It was only total war, however, that Slessor believed could be deterred through the threat of massive nuclear retaliation. For the Air Marshal, that threat would only be acted upon if the existence of 'great' nations were at stake, observing that Britain and the United States would be unlikely to initiate thermonuclear war to prevent a small, remote country falling under Communist domination or if their vital interests were not threatened. After all:

> If we would not be prepared to trade New York or London for some remote city in Asia, why should we imagine that the same principle would not determine the action of Russia or China?[79]

Although Slessor believed that the 'Great Deterrent' was the ultimate insurance policy against full-scale armed aggression, he did acknowledge, like the proponents of 'Graduated Deterrence', that the West required the means to respond to limited acts of aggression without having to resort to the potentially mutually destructive use of strategic nuclear weapons. Slessor was of the view that this medium course capability should be provided by strong conventional ground forces based on the Continent. Their function in Europe was not to wage a modernized version of the Second World War, but to act as a trigger-mechanism to ensure that the Soviet armies could not achieve its political aims through armed force without facing the consequences of full-scale thermonuclear war.[80] Slessor believed that the concepts disseminated by Buzzard and his disciples – that the formal renunciation of particular weapons systems would allow the West to capitalise on the use of tactical nuclear weapons in limited war – were 'not worth the paper they are written on'.[81] 'Graduated Deterrence' was criticised as making war more likely, with the consequent risk of escalation to the use of strategic nuclear weapons against centres of population. For the Air Marshal, in a strategic environment

[78] John Slessor, 'The Great Deterrent and Its Limitations', *Bulletin of the Atomic Scientists*, Vol. 12, No. 5 (May 1956), p. 140.
[79] Ibid., p. 141.
[80] Ibid., pp. 143-144.
[81] Ibid., p. 144.

overshadowed by the apocalyptic power of the H-bomb, the aim was to abolish war, not a method of waging it.[82] Slessor did concede, however, that tactical nuclear weapons could conceivably be employed in a war on the periphery of Europe, for example in Asia, and kept limited both geographically and by the types of nuclear weapons used.[83]

In August 1956, Buzzard produced a revised version of his theory of 'Graduated Deterrence' which was again sent, two months later, to the Defence Department at the Foreign Office.[84] Buzzard began by asking whether history will judge that the West's defence policy was not as closely attuned as it should have been to its political needs, moral standards, and to the established principles of international law.[85] He went on the say that since global war would result in the use of the H-bomb by both sides, leading to 'mutual suicide', the Soviet Union would be reluctant to instigate such a conflict. Consequently, the most likely military threat to the West was local aggression using conventional forces and brought about by third parties such as the North or South Koreans, the Communist or Nationalist Chinese, the Viet Min, the East or West Germans, or the Egyptians or Israelis.[86] However, since the West would be inferior in conventional forces across all theatres, Buzzard believed that it was essential that Allied forces employ tactical nuclear weapons to compensate for its shortage of manpower. Buzzard therefore thought that the crux of the problem was how to stop the tactical use of nuclear weapons against military targets escalating to the strategic use of thermonuclear weapons against civilian targets beyond the battlefield.[87] In order to stop such an event occurring, Buzzard argued again that distinctions should be made in peacetime between nuclear weapons and that he could see no way in which such distinctions could not be made, however

[82] Ibid., p. 144.
[83] Ibid., p. 146.
[84] TNA, FO 371/123132, ZE 112/269, Anthony Buzzard to G. L. McDermott, 4 October 1956.
[85] TNA, FO 371/123132, ZE 112/269, Defence Policy Reviewed, 8 August 1956, p. 1.
[86] Ibid., p. 1.
[87] Ibid., p. 2.

arbitrary they might at first appear.[88] The Rear-Admiral proposed sending a note to the Kremlin, which is worth outlining in full, stating:

> We have between us, as yet, many unsettled local issues over which conflicts may well arise. Neither of use wants war, particularly global or total war, but war might break out unintentionally. We in the West will never be the first to initiate the use of the Hydrogen bomb, except for a truly vital issue and in the last resort. But if local war should break out between us, we might, in some circumstances, find ourselves forced to initiate the use of tactical atomic weapons against tactical targets. In order to ensure the best possible chance of such a tactical atomic local war remaining limited, and not spreading to the unlimited 'H' bombing of cities and global war, we propose that tactical nuclear weapons should be defined as 'so-and-so', and tactical targets as 'so-and-so'. We would like to negotiate and agree these definitions with you, but pending such agreement we, nevertheless, propose to establish them unilaterally in the hope that you and other countries will agree them in due course, and so that they are available for adoption if required, should a tactical atomic local conflict break out.[89]

It is telling how Buzzard conveniently omitted well-defined examples of what he believed constituted a 'tactical' nuclear weapon or a 'tactical' military target. In a defence conference held in Brighton between 18 and 20 January 1957,[90] Buzzard advanced the methods by which he thought tactical nuclear warfare could be kept limited, which were divided into four categories: geography, war aims, weapons, and targets. Geographically, Buzzard proposed that clear boundaries would have to be drawn in order to limit the area of hostilities. These could be national, natural, or arbitrary boundaries and could be drawn tacitly, as in Korea, or by declaration.[91] On the question of war aims, Buzzard urged that these too should be limited and should seek to compel an enemy to negotiate rather than pursue unconditional surrender – which might well force the opposition to resort to the desperate use of strategic nuclear weapons. He added that 'the less both sides *think* the war is going to spread, the less likely it is to do so'.[92] Limiting the weapons used in a local conflict might be trickier and would require

[88] Ibid., pp. 4-7.
[89] Ibid., p. 9.
[90] The conference led to the formation of the Brighton Conference Association which became ultimately the Institute for Strategic Studies. See, Howard, 'IISS – The First Thirty Years', pp. 11-12.
[91] TNA, FO 371/129237, ZE 112/38, Report of the Defence Conference held at Brighton, 18-20 January 1957, pp. 10-11.
[92] Ibid., p. 11.

distinctions to be made in peacetime, but Buzzard's watchword in that context was restraint. He advocated the development of low yield tactical nuclear weapons which produced little radioactive fallout, thus reducing the possibility of collateral damage, especially to centres of population, and of the concomitant danger of escalation.[93] Finally, Buzzard outlined how a restriction on targets might limit a tactical nuclear war and proposed that all towns, cities, ports, and populated naval bases be barred from atomic attack regardless of the targets they contained, with only three exceptions: those in the land battle zone not declared and proved 'open' beforehand; those from which offensive missiles are launched; and those which contain operational airfields.[94]

In the ensuing discussion, including the Bishop of Chichester and the original Buzzard group, the participants reached the conclusion that it would be unwise to impose any theoretical limitations on targets or weapons in advance of a situation arising and that the best hope of limiting any future tactical nuclear war was through limiting war aims.[95] One Foreign Office official, after consulting the conference proceedings, thought that Buzzard's arguments were 'not very impressive' and noted that it appeared that Denis Healey, who had previously supported 'Graduated Deterrence' in its purest form, had now deviated to a view that was more akin to a policy of 'economy of force'. In this he supported the views of Monckton who, in the defence debate the previous February, stated that 'Graduated Deterrence' would not work in Europe (because the political and strategic stakes were too high) and that distinctions between nuclear weapons could not be made public beforehand. Stretton also thought that participants debating the feasibility of 'Graduated Deterrence' at the conference had ignored the fact that it was known to be NATO policy that tactical nuclear weapons would be employed at the outset of any future conflict.[96]

[93] Ibid., pp. 11-12.
[94] Ibid., pp. 12-14.
[95] Ibid., pp. 26-27.
[96] TNA, FO 371/129237, ZE 112/38, Confidential Minutes, 9 April 1957.

In June 1957 Buzzard, P. M. S. Blackett, Denis Healey, and Richard Goold-Adams wrote an article on how to limit a tactical nuclear war for the American publication *Bulletin of the Atomic Scientists*. Although clearly a presentation for the case for 'Graduated Deterrence', the article represented a somewhat revised version of the theory which incorporated the changing thoughts of proponents such as Denis Healy – primarily that limited nuclear war would only be possible in certain theatres of operations. The authors argued that if, in theory, it was possible and practical to draw distinctions between nuclear weapons and targets, this would only be possible in wars that were of limited area and limited scope.[97] A local war might be limited to the accepted rules of tactical nuclear warfare, or it might even be possible for a local war to be total and unlimited, in terms of weapons used and targets attacked, within a given area. The authors saw no inherent reason why an unlimited thermonuclear war should not develop in the Far East without it spreading to Europe, although there would be much less risk of the war escalating if hydrogen bombs were not used.[98] However, it was in that theatre – Europe – that the advocates of 'Graduated Deterrence' now believed tactical nuclear war could not take place without automatic escalation to the unlimited use of strategic nuclear weapons. The difference was that Western Europe was regarded by both sides as being a vital area. While the authors could envisage neither side demanding unconditional surrender as the price of peace in theatres such as Indo-China or Korea, because the region was not vital to the survival of either power bloc, the same could not be said for Europe.[99] The prophets of 'Graduated Deterrence' now conceded that although some of the lessons of limited nuclear war might apply in Western Europe, peace would be maintained on the Central Front 'by virtue of the over-all thermonuclear stalemate'.[100]

[97] Anthony W. Buzzard et al., 'On Limiting Atomic War', *Bulletin of the Atomic Scientists*, Vol. 13, No. 6 (June 1957), p. 220.
[98] Ibid., p. 221.
[99] Ibid., pp. 221-222.
[100] Ibid., p. 222.

Buzzard's parting shot on the subject was a note on the summary of his thesis which was passed to the Foreign Office in June 1957 – clearly Buzzard thought that his theory required further consultation in the department. In it Buzzard outlined the evolution of his thoughts on the subject in twelve succinct points. His overarching message was that the West should now shift its focus to preparing for limited wars since the possibility of global war had diminished radically because of the threat of mutual destruction through the use of thermonuclear weapons. Buzzard argued, however, than in order to emerge victorious in a limited war against the mass land armies of the Soviet Union, the West had no choice but to use tactical nuclear weapons as force multipliers, but that clear guidelines about their use must be promulgated beforehand a future conflict. Buzzard argued that this would reduce the risk of escalation to the strategic nuclear level and would reassure public opinion at home and abroad that the West was prepared to restrain its use of force to only that which was morally justifiable.[101]

Conclusions

Throughout the 1950s, the concept of 'Massive Retaliation' came under attack, and its suitability as the basis of British defence policy challenged. The United States sought to conventionalise tactical nuclear weapons in the context of its New Look at defence of 1954 and urged habitually throughout the period that British leaders make public statements distinguishing between the use of tactical and strategic nuclear weapons – the former less drastic and therefore 'useable' in a military context, the latter altogether something different. Closer to home, strategic thinkers in Britain, spearheaded by Rear-Admiral Sir Anthony Buzzard, proposed the new concept of 'Graduated Deterrence' in the hope of rationalising British strategic doctrine and injecting into it greater moral considerations than hitherto. Prophets of 'Graduate Deterrence' agreed with the official view in Washington that distinctions

[101] TNA, FO 371/129246, ZE 112/237, Summary of Graduated Deterrence, 20 June 1957, pp. 1-2.

should be made in peacetime between tactical and strategic nuclear weapons, a notion which lay at the heart of the theory itself.

Yet, however much pressure was put on the British defence establishment to rethink its strategic posture in relation to nuclear weapons it remained staunchly opposed to any attempts to alter the status quo. The threat of massive nuclear retaliation remained the ultimate deterrent to war and the nation's premium insurance policy against armed aggression from the East. Suggestions to normalise the use of tactical nuclear weapons by framing them within the context of conventional war-fighting operations was anathema to Whitehall officials, who believed that categorising nuclear weapons before the start of hostilities would serve only to undermine the deterrent effect of those weapons. In part, this reflected the strategic stakes involved. British policy-makers wanted to make clear to their Soviet counterparts that any armed aggression in Western Europe, however limited, would be met with the full weight of the Allied war potential. Only then was it believed that the Kremlin could be sufficiently deterred from embarking on any military activity in that region. Where the strategic stakes were lower, that is, in regions that were not essential to the survival of the United Kingdom, officials conceded that tactical nuclear weapons might possibly be used in a limited war without the risk of automatic escalation to the use of strategic nuclear weapons.

Thus, attempts to supplant 'Massive Retaliation' with a policy of 'Graduated Deterrence' failed. This is something of an anomaly since NATO ground forces were tied since 1954 to the first use of tactical nuclear weapons in the event of a Soviet invasion of Western Europe. This meant that the British Army of the Rhine would have to learn to fight and prevail on a nuclear battlefield if the Red Army rolled across the inter-German border. For the Army, therefore, whether the use of tactical nuclear weapons signified the onset of global thermonuclear war or not was a moot point. It would still be required in the opening stages of a third world war to stem the red tide and protect the territories of the Western European Allies. The Army's

position within British defence policy and the NATO alliance is the subject of the following section.

Section Two

The British Army in National and Alliance Strategy

Chapter III

The Army and the Changing Strategic Environment

On 25 January 1956, at the height of the deliberations on the Long Term Defence Programme, Anthony Head, the Secretary of State for War, wrote a letter to the Minister of Defence highlighting the strain that had been placed upon the Army in previous years. No other army in history, Head argued, had had such a high proportion of units based overseas in peace or had suffered such repeated moves. He pointed out that three armoured regiments and 16 infantry battalions had not served in the United Kingdom since 1939, and a further three battalions had served 10 years overseas since 1946. Furthermore, the Secretary of State stressed that 1 Highland Light Infantry had been moved no less than 11 times since 1948, twice at short notice in emergency without their families, and that 1 Worcesters had been relocated 10 times in the same period, with only one year spent in England since the end of the war.[1] Head's letter brings into sharp focus the heavy burdens carried by Britain's land forces after the end of the Second World War. The Army inherited a substantial portfolio of overseas security commitments, which were fully consonant for a nation that was once the world's pre-eminent colonial power. Not only did the Army have to manage these ongoing missions in foreign countries, but it had to prepare for the possibility of a military confrontation on the Continent because of the burgeoning threat posed by a powerful Soviet Union, whose armies were already firmly entrenched in Eastern Europe.

Although the Army's commitments grew after 1945, its capabilities diminished. The first chapter of this thesis has shown how British defence policy during the late 1940s and 1950s was characterised by attempts by the political leadership to gain greater control over the formulation of national defence policy and individual service planning. Economic rather than

[1] TNA, DEFE 7/966, Secretary of State for War to the Minister of Defence, 25 January 1956.

military-strategic considerations began to dominate defence policy and the needs of the military were often left wanting. This resulted in a disparity between what government hoped the armed forces could achieve in support of national foreign policy, and what the services maintained could be reasonably expected of them with the resources made available. Difficult decisions had to be made about Britain's military role in the world, the level of commitment to European defence, and the types of military capabilities that should be given priority in defence planning. These were important considerations that established a clear set of assumptions and beliefs about the changing strategic environment and Britain's position within it. Once established, these strategic principles proved to be extremely resilient to modification and continued to shape strategic planning throughout the whole period covered in this thesis.

All of this had a significant impact on Army planning in the immediate post-war years. The problem was one of predicting the nature of a future Soviet threat and then deciding how best to deal with it with the manpower, equipment, and technology that would most likely be available. On the operational and tactical level, Army thinking was couched in the conventional setting, despite broader government shifts towards nuclear deterrence at the political-strategic level. As the 1946 defence White Paper stated, the atomic bomb 'cannot fail to affect the make-up of our forces. Time is wanted for the full effects of these startling developments to be assessed. But in the meanwhile…the question of fundamental reorganisation does not arise'.[2] However, although Army thinking about the use of nuclear weapons in land combat was still in its infancy, many of the plans developed by the Army for a major land war against the Soviet Union informed later service thinking about tactical nuclear weapons and the atomic battlefield. Many of the solutions to the strategic dilemmas that confronted military planners during the late 1940s – for example, how to counter-balance Soviet manpower superiority – suggested that a quantitative increase in battlefield firepower would be required. Indeed, many of the

[2] Cmd. 6743, *Statement Relating to Defence* (London: HMSO, 1946), p. 3.

concepts developed in the late 1940s would eventually take on a nuclear theme, thus revealing, in embryonic form, tactical nuclear doctrine of the 1950s.

This chapter examines Army planning and thinking about the changing strategic environment between the years 1945 and 1952. It argues that the conclusions drawn from this assessment resulted in the adoption of a number of strategic principles that were influential in informing later Army thinking about tactical nuclear weapons. The chapter is divided into three sections. The first section examines how the service stood after the end of the Second World War – its commitments and capabilities, and how these were affected by government policies. The second section analyses how the various military and civilian decision-making bodies perceived the burgeoning Soviet threat and the implications that this had for military planning. The third section assesses how inter-service military planners at the national level approached the problem of planning for the defence of Western Europe against the Soviet threat.

Commitments and Capabilities

In the period of readjustment after the end of the Second World, the Labour government under Clement Attlee was confronted with the difficult task of having to fund its considerable overseas security commitments with depleted resources. Although British power was clearly waning after 1945 in comparative terms, it still remained the world's largest imperial power and was directly responsible to those overseas territories that still fell under Crown control. Yet, with a veneer of Great Power status, British policy-makers appeared reluctant to turn their backs on the substantial global responsibilities that they had inherited after the end of the Second World War. A major challenge, then, for British defence policy-makers in the immediate post-war years was bringing into harmony the nations commitments and capabilities – that is to say, ensuring that national resources could maintain what was reasonably expected of the armed forces in the rapidly and significantly changing strategic environment after 1945.

All of this had ominous implications for the Army. Not only did it carry much of the burden of post-war occupation duties and imperial policing missions, but it also had to respond to international emergencies with diminishing capabilities.

Although Britain had emerged from the Second World War as a victorious power, it was virtually bankrupt with severe balance of payment difficulties. Net income from abroad stood at just £50m in 1945 in contrast to a high of £168m in 1938. This was a result of the sale between September 1939 and June 1945 of £1,118m of overseas assets coupled with an increase in external liabilities to the tune of £2,879m.[3] The unexpected surrender of Japan in August 1945 denied the British economy a much needed period of transition in which it might have been gradually adjusted to the new peacetime conditions. What is more, the end of hostilities against Japan brought an abrupt halt to American Lend-Lease – not only would there be no new shipments, but Britain was obliged to pay for all unused supplies that were in the pipeline. The net effect was that the United Kingdom ended the war with the largest external debt in history.[4] Such was the parlous state of the economy that a senior Treasury advisor, John Maynard Keynes, warned that 'a financial Dunkirk' may befall the nation.[5]

The Attlee government was therefore presented with stark choices with how national resources should be allocated. Economies would have to be found in almost all areas of government spending. In 1945, overseas expenditure, most of it on the military, came in at just over £700m. At this level it could almost be held to account for the whole 1945 deficit of £800m.[6] Although the military justified such high levels of defence spending on the grounds that they required enough financial resources to satisfy the short and long-term needs of the services, these demands competed with other government commitments for a slice of the fiscal

[3] G. C. Peden, *Arms, Economics and British Strategy* (Cambridge: Cambridge University Press, 2007), p. 245.
[4] Alec Cairncross, *Years of Recovery: British Economic Policy 1945-51* (London: Methuen, 1985), pp. 3-7.
[5] Richard Toye, 'Churchill and Britain's 'Financial Dunkirk'', *Twentieth Century British History*, Vol. 15, No. 4 (2004), p. 329.
[6] Cairncross, *Years of Recovery*, p. 10.

pie, not least social welfare programmes, which senior Ministers were unwilling to recant on.[7] These popularly-mandated programmes, which together established what came to be known as the Welfare State, required the nationalisation of key industries and the better provision of health, welfare, and education for all.[8] The correct balance to be struck between national defence and social welfare created something of a dilemma. While Ministers were aware of the pressing need to restore the economic health of the nation, there was the acknowledgement that Britain could not simply abandon its responsibilities in the world. To do so, as the first post-war White Paper on defence warns, would be to 'throw away the fruits of victory, and to betray those who had fought and died in the common cause'.[9]

For the Army, the fruits of this victory brought with it an impressive array of overseas security commitments. After 1945, British garrisons were to be found in over 40 countries, spanning every major theatre: in the North and South Atlantic, Europe, Africa, the Middle East, India, Burma, Hong Kong, Japan, Malaya, Singapore, and Indonesia.[10] In Germany and Austria alone, a significant number of soldiers were tied down with the myriad tasks associated with post-war occupation duties: the 1,894,000 German prisoners of war had to be processed; 2,233,694 displaced persons had to be repatriated; and communications, transport, and accommodation had to be repaired or developed.[11] Further afield, the Army remained responsible for internal security in those territories that still fell under Crown control. Although British imperial commitments were gradually reducing because its position as a colonial power had become untenable, for example in Transjordan, India, and Palestine, such withdrawals were certainly the exception and not the rule. When the strategic stakes were high, *realpolitik*

[7] Anthony Gorst, 'Facing Facts? The Labour Government and Defence Policy 1945-1950' in Nick Tiratsoo (Ed.), *The Attlee Years* (London: Pinter, 1991), pp. 190-191.
[8] Franklyn A. Johnson, *Defence by Ministry: The British Ministry of Defence, 1944-1974* (London: Duckworth, 1980), p. 17.
[9] Cmd. 6743, *Statement Relating to Defence* (London: HMSO, 1946), pp. 2-3.
[10] David Sanders, *Losing an Empire, Finding a Role: British Foreign Policy since 1945* (Basingstoke: Macmillan, 1990), pp. 49-50.
[11] TNA, CAB 128/1, CM(45)18, Review of Military Situation, 7 August 1945.

security calculations dominated decision-making, and Britain proved to be both willing and able to subjugate national uprisings and colonial unrest. The decision to resist Communist revolutionaries in Malaya in 1948, for example, stemmed from considerations of the effect that the insurgency would have on British interests in the Far East and the strategic importance of Malaya as one of the major world providers of rubber and tin.[12]

The military nature of these overseas security commitments required boots on the ground. Minor police actions, riot control, and full-scale counter-insurgency operations all served to exact a heavy burden on Army manpower. Where British imperial policy was one of retrenchment rather than withdrawal, the Army was often drawn into prolonged counter-insurgence operations. In Palestine alone, a well-armed and well-organised Jewish underground army had tied down 100,000 British troops, a tenth of the empire's total military manpower, before Britain passed its mandate over to the United Nations in 1947.[13] In Malaya, the Army fought against Communist guerrillas in a counter-insurgency campaign that would drag on for twelve years (1948-60) while simultaneously engaging in major combat operations against Mau Mau rebels in Kenya (1952-56) and EOKA independence fighters in Cyprus (1954-59).[14] These imperial security commitments placed an unwanted strain on Army resources at a time when it was engaged in high-intensity war-fighting operations on the Korean peninsula (1950-53) against a backdrop of escalating Cold War tensions. David Sanders is correct in stating that the tactical successes of British counter-insurgency operations in Malaya and Kenya almost resulted in strategic failure since it overstretched British military capabilities at time when it was needed the most.[15]

[12] Sanders, *Losing an Empire*, pp. 82-83.
[13] Robert Self, *British Foreign and Defence Policy Since 1945: Challenges and Dilemmas in a Changing World* (Basingstoke: Macmillan, 2010), pp. 42-46.
[14] Ibid., pp. 47-50.
[15] Sanders, *Losing an Empire*, pp. 98-99.

Part of the reason why the Army became dangerously overextended by the beginning of the 1950s was the rapid pace of demobilisation after 1945. The rate at which Army manpower was released after the war was largely a result of economic considerations. Many of the workers who had kept Britain's factories afloat during the wartime years – women, and men long past retirement age – were now returning home. The civilian workforce was therefore worryingly short of manpower. If the United Kingdom was to rebuild its export trade and reinvigorate industry before a complete economic collapse, the transfer of manpower from the fighting services into more economically profitable activities was of the uppermost importance.[16] Furthermore, the War Cabinet had proved receptive to the needs of servicemen who were eager to return back to leading normal lives after many years of hard fighting. Senior ministers feared that if government did not produce a fair plan for discharging soldiers after major combat operations had ended then there might be a repeat of the demobilisation riots that had gripped the Army in 1918-19.[17] Such was the rapid pace of demobilisation that the Army ran down from a strength of 3,000,000 (29 divisions and 35 brigades) in 1945 to 450,000 (3 divisions and 8 brigades) all ranks in 1948.[18]

Although the War Office understood that Britain could not sustain the vast manpower levels it had attained during the war, it was, nonetheless, cautious against too rapid a run-down of Army manpower. As early as February 1944, the Army Post-War Plans Committee (APWPC) outlined the risks of demobilising too quickly in its first report on the commitments and basic organisation of the post-war Army. One of the broad assumptions on which the report was based was that British imperial commitments in the post-war world would remain the same as they had been in 1939 and that there would be no assistance from the dominions in providing

[16] Alan Allport, *Demobbed: Coming Home After the Second World War* (London and New Haven, CT: Yale University Press, 2009), p. 30.
[17] David French, *Army, Empire, and Cold War: The British Army and Military Policy, 1945-1971* (Oxford: Oxford University Press, 2012), pp. 36-37.
[18] TNA, WO 32/16091, 79/GEN/3546/RD4(A), Rundown of the Army 1945-48, 13 July 1956.

troops for imperial garrisons.[19] Army planners predicted that except for a few African and Gurkha troops, colonial manpower would be no longer available after 1945, and it would be large numbers of *British* troops that would have to be deployed overseas.[20] Despite the fact that Army manpower would be stretched, the APWPC identified that the primary roles of the peacetime Army would be to provide: a standing Army to protect against a sudden attack in an undeclared war; a national Army for mobilisation in an international crisis or a major war; a citizen army for the defence of the home islands; garrisons for overseas possessions; and mobile forces capable of reinforcing outposts in the event of local emergencies.[21] Anticipating substantial post-war security commitments, the report stated that the crux of the whole problem was to attempt an estimate of the maximum size at which the Regular Army might reasonably be expected to be maintained in peace, and to organise and allot the available resources in as economical a manner as possible.[22]

This was an issue that was acknowledged by the Director of Staff Duties, Maj.-Gen. L. O. Lyne, who told Army commanders at a conference in March 1946 that the rapid reduction of Army manpower would present serious problems, both of quantity and quality, and that the Army would have to work hard to maintain its operational efficiency during the transition period from war to peace.[23] Indeed, a report from the Joint Planning Staff (JPS) in July 1947 highlighted the extent to which Army strength had waned in two years of peace. In 1945 the Army had 20 divisions deployed overseas. It now had two infantry and one armoured division deployed in Germany, an infantry brigade each in Austria and Trieste, an infantry, armoured, and airborne division deployed in the Middle East, a few brigades of various types in India and

[19] TNA, WO 163/93, ECAC/P(44)11, Standing Committee on Army Post-War Problems: First Interim Report, 8 February 1944.
[20] TNA, WO 163/93, ECAC/P(44)12, Plans for the Transition Period: Brief for the Secretary of State Prepared by the APWPC, 8 February 1944; TNA, CAB 69/7, DO(45)7, Provisional Requirements for Post-War Armed Forces, 5 October 1945.
[21] WO 163/93, ECAC/P(44)11.
[22] Ibid.
[23] TNA, WO 33/2320, Second CIGS Conference Camberley, 19-23 March 1946.

South East Asia, and a collection of Territorial Army divisions and anti-aircraft units based in the U.K.[24] Although this may appear to be a fairly substantial order of battle on paper, the reality was somewhat less impressive. All Royal Armoured Corps and Royal Artillery units were under strength and administrative services in all theatres were exceedingly weak and in some cases did not exist at all. Likewise, coast and anti-aircraft units suffered from a shortage of manpower and the Territorial Army units that were based in the U.K. were in such a bad state of affairs that they could 'barely be said to exist'.[25]

It was against this backdrop of diminishing land power that the Chief of the Imperial General Staff, Field Marshal Bernard L. Montgomery, attempted to lay the blueprints for Britain's first post-war army. The Field Marshal was anxious that the Army would not possess an adequate number of regular soldiers to perform its myriad post-war duties. One of the problems, in addition to the effects of general demobilisation, was that recruiting for the Regular Army was poor. Understandably, few men had the desire to sign up for a life in the Army away from their families so soon after the social dislocation and upheaval of the war-time years. In a candid letter to his loyal friend and erstwhile chief of staff, Francis de Guingand, Montgomery confessed that 'we want 220,000 regulars by the end of 1949; if we fail, we shall be in great difficulties'. Although Montgomery was 'mentally prepared' for a shortage of a few thousand men he believed that if the Army were to 'fail by say 50,000 it will be awkward'.[26] The newly appointed CIGS therefore had the difficult task of developing an organisation that reflected the acute manpower problems of the service.

The starting point of Montgomery's New Model Army, as he himself called it, was that 'the real Army of Britain in a future major war will be the Territorial Army; *that* Army would be the National Army which would fight and win the next war'.[27] Indeed, the CIGS was

[24] TNA, DEFE 6/3, JP(47)97(Final), Position of the Armed Forces – Summer 1947, 8 July 1947.
[25] Ibid.
[26] IWM, Montgomery Ancillary Collections 4, Montgomery to Francis de Guingand, 1 June 1947.
[27] TNA, WO 216/233, CIGS/BM/28/1774, Memorandum by CIGS, The British Army, 8 September 1947.

convinced that the Territorial Army was the organisation on which depended the ability of Britain to wage land warfare in the future.[28] Montgomery envisioned that the small regular Army would act as a training cadre for the Territorial Army by sending a steady flow of trained manpower through its ranks. In a radical break with pre-war Army organisations, there would be no field Army based in the UK that, in the event of war, would act as an expeditionary force to gain time for the nation to mobilise its army of conscripts.[29] The reason was that it would be simply not possible at the start of another major war for Britain to donate token ground forces for Continental defence, as she had done in two world wars, and remain on the defensive while her war production industries lurched into motion. As the Chiefs of Staff succinctly put it in 1947:

> The days when we could afford to remain on the defensive, while gathering our great strength for the knock-out blow, ended with the advent of the cross channel pilotless [sic] missile and with the dropping of the first atom bomb.[30]

Rather, in this new strategic environment, the nation would have to fight the opening stages of a future war with forces in being, that is, those units that were already deployed and prepared for war at the onset of hostilities. As the 1947 defence White Paper acknowledged, 'the need in the unhappy event of a future war will be for large numbers of reserves available at short notice for the immediate tasks of defence'.[31] Montgomery recognised that the lack of a regular field Army in the UK would involve taking certain risks, but that it would simply have to be accepted.[32]

Such a manpower intensive solution to national defence rested on the passage of National Servicemen through the ranks of the New Model Army. Yet, persuading government to instigate a National Service programme that fulfilled the Army's needs proved to be difficult.

[28] TNA, WO 216/205, Minutes of the Fifth Meeting of Home Army Commanders, 20 March 1947.
[29] TNA, WO 216/233, CIGS/BM/28/1807, Memorandum by CIGS, The British Army III, 25 September 1947.
[30] TNA, CAB 21/1800, DO(47)44, Future Defence Policy, 22 May 1947.
[31] Cmd. 7042, *Statement Relating to Defence* (London: HMSO, 1947), p. 7.
[32] TNA, WO 216/233, CIGS/BM/28/1801, Memorandum by CIGS, The British Army II, 23 September 1947.

Although the Cabinet Defence Committee had agreed in 1946 to introduce a permanent scheme of National Service beginning in January 1949, there were deep disagreements between government and the services on the preferred length of service. The services wanted 24 months service as this would allow ample time to train the conscripts and to get some useful service out of them before they were discharged. However, aware that the Cabinet would not agree to this, the Chiefs of Staff were willing to accept 18 months. The Chiefs did not even get this. After a turbulent passage through Parliament, the legislation was eventually modified to just 12 months active service with the colours.[33] It would take both Montgomery and his successor as Chief of the Imperial General Staff, Field Marshal Sir William Slim, to threaten resignation before the government reluctantly increased the length of service back to 18 months.[34] The final change to the 1947 National Service Act came in August 1950 following the outbreak of the Korean War where the period of conscript service was increased to the original 24 months as part of a major rearmament package.[35]

The immediate post-war years, then, was a period of economic and military readjustment to changing circumstances. Government stressed consistently the need to make economies in defence expenditure to bring it into line the nation's overseas security commitments with what could be achieved with the available resources. The disposition of the Army's case bears witness to the cold realties of British defence policy-making during this period. Confronted with considerable overseas obligations, the needs of the military often became subservient to other, more pressing, government commitments during a time of peace. Although the Army was able to carry out its short-term tasks, the emergence of the Soviet Union as a potential

[33] French, *Army, Empire, and Cold War*, pp. 42-45.
[34] Bernard L. Montgomery, *The Memoirs of Field-Marshal The Viscount Montgomery of Alamein* (London: Collins, 1958), pp. 479-480; Ronald Lewin, *Slim the Standard Bearer: A Biography of Field-Marshal The Viscount Slim* (London: Leo Cooper, 1978), pp. 267-270.
[35] French, *Army, Empire, and Cold War*, p. 45.

threat to British interests during the late 1940s raised new concerns over the ability of the Army to develop forces to fight a major war at some undetermined time in the future.

Threat Perceptions

Assessment into the most likely threats facing the nation after 1945 was the task of a number of interlocking government committees and sub-committees, both political and military. Intelligence staff, military planners, and foreign policy-makers, all possessed a vested interest in examining the types of security threats facing Britain in the post-war world. This was a fluid process that reflected the rapidly and significantly changing strategic environment within which important decisions about British defence policy had to be made. Invariably, this meant that the various actors responsible for identifying emerging threats often held different views on what constituted the most immediate danger to British interests. Such was the case when examining the challenges posed by a powerful Soviet Union, which had become one of the world's two superpowers after 1945.

Towards the end of the Second World War there was a divergence of views between the military Chiefs and the political leadership over whether the Soviet Union should be identified, for planning purposes, as being the most likely threat to British interests. On 27 July 1944, the wartime Chief of the Imperial General Staff, Field Marshal Lord Alanbrooke, wrote in his diary that 'Germany is no longer the dominating power of Europe, Russia is' and that she 'cannot fail to become the main threat in 15 years from now'.[36] This was a view shared by Alanbrooke's colleagues on the Chiefs of Staff Committee, and one that was laid out clearly in a November 1944 Post-hostilities Report. The report warned that Russia had become the greatest land power

[36] Alex Danchev and Daniel Todman (Eds.), *War Diaries, 1939-1945: Field Marshal Lord Alanbrooke* (London: Weidenfeld & Nicolson, 2001), p. 575.

in the world and that it might therefore be tempted to extend its sphere of influence through the export of Communism abroad.[37]

Officials in the Foreign Office, however, remained wary of behaving in ways that might be seen as threatening by Soviet leaders. The Foreign Secretary, Anthony Eden, was particularly concerned about the effects that entering into a peacetime alliance with one or more of a number of Western European states would have on Anglo-Soviet post-war relations. While Eden acknowledged that it would be in Britain's best interest to foster closer relations with its Continental neighbours when the war eventually came to an end, he did not want to provoke adverse reactions in the Kremlin that would undermine British security. To that end, Eden believed that it was paramount that any association between Britain and Western European nations should work towards preventing a renewal of German aggression. More importantly, it should be viewed as such by Soviet leaders. Any defensive alliance that sought to protect against a future Soviet threat, Eden warned, would be 'a most dangerous experiment which might well precipitate the evils against which it was intended to guard'.[38]

In March 1946, at the behest of the Chiefs of Staff, the Joint Intelligence Committee produced its first detailed post-war assessment of Soviet policy in its report on 'Russia's Strategic Interests and Intentions'. Although the intelligence staff had practically no direct intelligence of a detailed statistical or factual nature, they were, nonetheless, able to sketch out a broad outline of how Soviet policy would most likely develop in the years to come.[39] The picture they painted was gloomy. The JIC stated that the Soviet Union now existed in a precarious strategic environment and that its leaders would be dedicated to obtaining the highest level of territorial security. To prevent yet another invasion of Russian soil, the Kremlin

[37] John Baylis, *Ambiguity and Deterrence: British Nuclear Strategy, 1945-1964* (Oxford: Clarendon Press, 1995), pp. 60-61.
[38] TNA, CAB 66/53, WP (44) 409, Policy in Western Europe, Memorandum by Secretary of State for Foreign Affairs, 25 July 1944.
[39] TNA, CAB 81/132, JIC (46)1(O), Russia's Strategic Interests and Intentions, Report by the Joint Intelligence Sub-Committee, 1 March 1946.

would seek to extend its sphere of influence in the border regions and establish a security cordon of buffer states in Eastern Europe. All the while it would be working hard to repair the damage that had been wrought by years of fierce fighting.[40] With regards to likely Soviet policy vis-à-vis the United Kingdom, the JIC shared many of the reservations expressed by Eden two years earlier. While the Soviet Union would experiment with cooperation with the West, if it did not believe London and Washington were sincerely collaborating, it would increase its military presence in Eastern Europe and sow the seeds of political unrest in many parts of the world through the exploitation of local Communist parties.[41] The JIC concluded that the short-term aim of Russian policy was to avoid direct confrontation with the Western powers while it concentrated on the long-term goal of rebuilding the Soviet Union to a position of strength. Russian leaders would use every measure short of war to safeguard this process.[42] The authors signed off their report with the portentous sentence: 'It is not for us to recommend policy, but it is clear that the situation will require constant watching'.[43]

One man who was watching the situation closely was the Prime Minister. Attlee approached the Russian question with caution and appeared keen to reach some kind of political agreement with the Soviet Union. In December 1946 he wrote to Ernest Bevin, who had succeeded Eden as Foreign Secretary in 1945, outlining some of his thoughts on future British policy towards the Soviet Union. Highlighting the uncertain and suspicious nature inherent in all international relations, Attlee stated that it was difficult to tell how far Soviet policy was dictated by a genuine desire to extend her sphere of influence and the extent to which it was driven by fears of an attack by the West. On account of Britain's lack of resources and general war-weariness so soon after the war, Attlee believed that it would be advantageous to accommodate the Soviet desire for a neutral zone along its border regions lest Soviet leaders,

[40] Ibid.
[41] Ibid.
[42] Ibid.
[43] Ibid.

in a fatal show of mirror-imaging, misinterpreted Western defensive measures as aggressive behaviour.[44] A month later he solidified this view in a memorandum to the Foreign Office:

> Unless we are persuaded that the USSR is irrevocably committed to a policy of world domination and that there is no possibility of her alteration…we should seek to come to an agreement with the USSR after consideration with Stalin of all our points of conflict.[45]

Army leaders continued to take a hard line, however. David French has illustrated vividly that many senior officers even employed pseudo-religious metaphors to describe the threat posed by the Soviet Union.[46] For example, in the spring of 1947 Montgomery told Army commanders at a War Office exercise that it was 'the religion of Communism operated by the Politburo which is dominating the country and forcing it down the garden path' to world domination.[47] In a similar vein, Montgomery's successor as CIGS, Sir William Slim, told senior officers at a 1949 conference that 'we have gone back somewhere into the Middle Ages. We have gone back into the time of the wars of religion.' Slim informed his colleagues that the only way that the West could resist the 'religion' of Communism was 'to strengthen our own religion, our belief in Democracy and our belief in Christianity'.[48] Behind these public displays of anti-Communist rhetoric, the War Office took practical steps towards understanding the military threat posed by Russian land forces. An examination of the papers of the Directorate of Military Training, for example, reveals that the Army had begun to study Soviet methods and techniques of warfare since the immediate post-war years.[49]

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[44] TNA, FO 800/475, ME/46/22, Attlee to Bevin, 1 December 1946.
[45] TNA, FO 800/476, ME/47/1, Attlee to Bevin, 5 January 1947.
[46] French, *Army, Empire, and Cold War*, p. 26.
[47] TNA, WO 216/202, CIGS/BM/26/1241, War Office Exercise Spearhead, address on the world situation by the CIGS, The Staff College Camberley, 5-10 May 1947.
[48] TNA, WO 216/789, Exercise Britannia, address on the world situation by the CIGS, The Staff College Camberley, 26 May 1949.
[49] Many of these reports were based on captured German war-time intelligence documents relating to Red Army combat tactics and doctrine. See, for example, TNA, WO 231/88, SDWT/831, Combat Tactics of the Red Army, 22 April 1949; TNA, WO 231/88, MI3(d)/205/49, Tactics of the Soviet Army, 7 December 1949; TNA, WO 231/88, 27/146/51/MI3(d), Soviet Artillery, 15 March 1951; TNA, WO 231/88, 206250, Soviet Training Aid for Constructing Anti-Tank Obstacles, 24 July 1951.

The cooling of Anglo-Soviet relations through 1946-1947, which culminated in the failure of the second London Council of Foreign Ministers' meeting, provided the backdrop for a second major assessment of Soviet strategic interests by the JIC.[50] This August 1947 assessment of 'Soviet Interests, Intentions, and Capabilities', like its 1946 predecessor, stressed the preoccupation with security of Soviet policy-makers. But whereas the 1946 JIC report had been unsure about Soviet long-term intentions, this latest report was more resolute. The intelligence staff believed that the writings of Lenin and Stalin could be regarded collectively as 'the 'Mein Kampf' of the Soviet Regime', and showed that Soviet leaders were committed to the task of hastening the collapse of capitalism in all parts of the world and replacing it with their own brand of Communism.[51] Supporting this policy was a vast military machine, the pinnacle of which was 175 army divisions and a well-equipped and well-armed tactical air force.[52] There was at least one chink in the armour of this seemingly impervious military behemoth, however. While the Red Army would be able to achieve rapid success on land, the strategic air situation remained adverse to the Soviet Union in that she had no satisfactory answer to the West's atomic weapons and bomber forces.[53] This weakness would be exploited to the full in the major strategy documents of the late 1940s and early 1950s.

The JIC's 1947 assessment suggests that the intelligence community was now beginning to acknowledge the ominous implications of the USSR's vast military resources. Of course, the military had always argued that the Soviet Union constituted a grave threat to British interests, a position they maintained throughout the late 1940s. In their 1947 planning paper on 'Future Defence Policy' the Chiefs of Staff stated that 'until the general political atmosphere

[50] The failure of ministers to agree on the future of Germany formalised the end of cooperation and the division of Europe. Baylis, *Ambiguity and Deterrence*, pp. 61-62; John Kent, *British Imperial Strategy and the Origins of the Cold War, 1944-49* (Leicester: Leicester University Press, 1993), pp. 156-157.
[51] TNA, CAB 158/1, JIC (47)7/1 Final, Soviet Interests, Intentions and Capabilities, Report by the Joint Intelligence Sub-Committee, 6 August 1947.
[52] TNA, CAB 158/1, JIC (47)7/2 Final, Soviet Interests, Intentions and Capabilities, Annex, 6 August 1947.
[53] Ibid.

improves, we cannot, therefore, rule out the possibility of war with Russia' and that British defence policy should reflect this development.[54] A year later, a report by the Joint Planning Staff stated unequivocally that 'no major power except Russia at present constitutes a threat to our interests'.[55] It was considered that Germany would not be a danger for many years, and if she did emerge again as a threat to British interests it would be possible to simply adjust defence policy to accommodate the new adversary.[56] In specifying a particular threat posed by the Soviet Union, 'Future Defence Policy' stated that:

> The Russian policy of territorial and ideological expansion by the absorption of satellite States and by the spread of Communism in peace constantly threatens various countries whose continued integrity and independence profoundly affect Commonwealth security. Our interests are challenged, not only throughout Europe but also in the Middle East and throughout the world.[57]

Military leaders, then, believed that the ultimate aim of Soviet policy was to establish Communism, directed by Moscow, throughout the world. However, they believed that a major war with the Soviet Union was not imminent. In their 1947 report on 'Future Defence Policy' the Chiefs of Staff wrote that they believed that the likelihood of war within the next five years was small, but that the risk would increase gradually in the following five years, increasing more steeply thereafter as the rehabilitation of Russian industry gathered momentum.[58] Thus, throughout the second half of the 1940s, 1957 was set, for planning purposes, as the date at which the Soviet Union would be ready to embark on a major war. This suited the British Army since, akin to its Soviet counterpart, it too was in no position during the late 1940s to 'undertake a major war against a first class power organised and ready for war'.[59] In the winter of 1947

[54] CAB 21/1800, DO(47)44.
[55] TNA, DEFE 6/6, JP(48)63(Revised Final), Western Union Defence Policy, 26 June 1948, para. 3.
[56] Ibid.
[57] CAB 21/1800, DO(47)44.
[58] Ibid.
[59] DEFE 6/3, JP(47)97(Final).

Montgomery, admitted that 'we cannot contemplate undertaking a major war until our economic and industrial strength has recovered'.[60]

However, events in the international arena during 1948-49 augured ill for the Chiefs' assumption that war should not be expected until 1957. The Communist coup in Czechoslovakia in February 1948, the Soviet blockade of Berlin from June 1948 to May 1949, the explosion of the first Russian atomic bomb in September 1949, and the Communist victory over Nationalist forces in the Chinese Civil War in December 1949 implied a more menacing international environment.[61] Concerns of a more aggressive and adventurous Soviet Union were reflected in various planning documents. In a 1948 paper, the Joint Planning Staff identified that the Soviet regime was firmly committed to the Marxist belief that Communist and capitalist powers could not live together except in a constant state of friction and struggle, and that they believed that Communism would ultimately emerge triumphant.[62] Although the Joint Planning Staff maintained that the Kremlin would attempt to achieve its goal of world domination through political methods, they presumed that if Soviet leaders believed that their objectives could not be achieved without going to war, they would provoke a conflict as soon as they considered themselves ready.[63]

This perceived increase in Soviet aggressiveness was one of the rationales for Britain's greater economic and military cooperation with her continental neighbours. From the early months of 1947, the Foreign Secretary, Ernest Bevin, made a determined effort to secure American economic and military support for Europe because in the event of a major war 'her man-power, industrial resources and her lead in the development of weapons of mass destruction, can turn the balance in favour of the democracies'.[64] The introduction of Marshall

[60] TNA, WO 216/244, CIGS/BM/29/1997, Some Notes on the Defence Problems of Britain, 30 December 1947.
[61] French, *Army, Empire, and Cold War*, p. 28.
[62] DEFE 6/6, JP(48)59(Final – Second Revise), Overall Strategic Concept for War in 1957, 20 July 1949.
[63] Ibid.
[64] CAB 21/1800, DO(47)44. Dan Keohane, *Labour Party Defence Policy Since 1945* (Leicester and London: Leicester University Press, 1993), pp. 18-19.

Aid in 1947 was an important step towards strengthening European economic and political stability, and a year later Bevin signed the Brussels Pact with France, Holland, Belgium and Luxembourg, committing each nation to assist the other in the event of an attack.[65] This convinced the United States that the Europeans were prepared to defend themselves and, therefore, paved the way for the signing of the North Atlantic Treaty Organization (NATO) in April 1949.[66]

The signing of the NATO treaty represented a radical departure from the 'traditional' British maritime strategy in that it committed a permanent contribution of land forces to continental defence. Furthermore, the establishment of the Atlantic alliance saw the emergence of an uncertain bi-polar world with the formal divide of Europe into two ideologically opposed power blocs, each of which was championed by a single superpower.[67] Military planners in Britain saw this divide, however, as the result of Soviet foreign policy decisions that, in turn, had been influenced by the theories of Marx and Lenin. Moscow had divided the world, the JPS argued in a 1950 paper on 'Allied Defence Policy and Strategy', into two main camps because the Politburo based its approach to world problems upon Marxist-Leninist dogma.[68] The conclusion drawn from this assessment was that the basic cause of friction in the world was 'the clash of interests between the Russian aim of imposing Moscow-directed Communism on the whole world and the determination of the Western Powers, led by the United Kingdom and the United States, to establish political and economic freedom and stability throughout the world'.[69]

The outbreak of the Korean War in June 1950 appeared to validate the proposition that East and West were locked into a mortal ideological struggle. A memorandum by the Chiefs of Staff

[65] The Brussels Treaty, 17 March 1948. TNA, CAB 129/26, CP(48)96, The Brussels Treaty, 24 March 1948.
[66] NATO, The North Atlantic Treaty, 4 April 1949.
[67] David French, *The British way in Warfare, 1688-2000* (London: Unwin Hyman, 1990), p. 214.
[68] TNA, CAB 21/3503, JP(49)172(Final), Allied Defence Policy and Strategy, 3 March 1950.
[69] Ibid.

in the summer of 1951 stated that the invasion of South Korea showed the increasing military aggressiveness of Communism, which was underlined by the Chinese intervention in November 1950. The Chiefs explained that the West was now in the curious position of being faced by 'Communist subversive and military action not amounting to total war, against a background of a threat of total war'. Therefore, the Allied Powers must 'expect further similar action in the future'.[70] This depiction of the Soviet threat as being an ambiguous combination of direct and indirect political and military confrontation shows that military leaders acknowledged that they were now operating in a unique international environment that would require a diverse range of capabilities to combat the full spectrum of potential threats to British interests. The correct balance to be struck between preparations for both 'cold' and 'hot' war would, as will be shown, weigh heavily on Army strategic planning throughout the whole period covered in this thesis.

National assessments of the Soviet threat after 1945 evolved considerably during the first post-war years. Although Army leaders had been arguing since the closing stages of the Second World War that the Soviet Union would emerge as a real threat to British security interests, civilian policy-makers, especially ministers in the Foreign Office, were reluctant to take a stance against the Soviet Union that may have appeared threatening through the eyes of decision-makers in the Kremlin. Indeed, early intelligence assessments suggested that Soviet leaders were focused more on improving border security and rebuilding the devastated Russian homeland than on making any aggressive moves against Western interests. Military leaders continued to take a hard line, however, and as a result of numerous international crises during 1947-1950, political leaders soon followed suit. Consequently, by the beginning of the 1950s, the Soviet Union was viewed as a suspicious and feared rival, and British defence policy began

[70] TNA, DEFE 5/31, COS(51)353, Defence Policy and Global Strategy, 8 June 1951.

to reflect this. Perhaps the most difficult challenge facing military planners was that of preparing for the defence of Europe against a future Soviet attack.

The Defence of the West

Army planning in the immediate post-war years centred on preparations to fight a conventional land battle against the Soviet Union on the European Central Front. Military and political assessments of how such a war would develop raised a number of important questions that were to frame strategic discourse throughout the 1950s. Above all, the Army's interest in developing forces for the defence of Western Europe reignited the age-old debate of a continental versus a maritime/air strategy, only this time there was the added dilemma of what role, if any, would be performed by nuclear weapons.[71] Consideration of the threat posed by these new weapons of unprecedented power challenged a number of well-entrenched strategic orthodoxies relating to Britain's role in the event of a major European war. This strategic reassessment had ominous implications for the Army. If the problems of conducting a conventional defence of Europe proved to be insurmountable, there would be clear repercussions for the service in the budgetary battles that gripped Whitehall during the late 1940s.

Immediately upon taking office as Chief of the Imperial General Staff in the summer of 1946, Montgomery began thinking about long-term preparations to fight a major war in which the primary role for the Army would be 'to play its part in the land battle for the defence of the Western Union'.[72] The Army chief produced a report that stated that Britain should work

[71] The seminal works on this subject are Michael Howard, *The Continental Commitment: The Dilemma of British Defence Policy in the Era of Two World Wars* (London: Temple Smith, 1972) and Brian Bond, *British Military Policy Between the Two World Wars* (Oxford: Clarendon, 1980). See, in addition, G. C. Peden, 'The Burden of Imperial Defence and the Continental Commitment Reconsidered', *The Historical Journal*, Vol. 27, No. 2 (June 1984), pp. 405-423.

[72] TNA, WO 216/267, Role of the Army on the Outbreak of War and Plan for Long Term Development of the Army to Fulfil its Role, n.d. [approx. 1946].

towards building up the strength of the Western Bloc to protect against any invasion from the East and that 'we ourselves must be prepared to fight on the mainland of Europe, alongside our Allies, with all that that entailed'.[73] Yet, Montgomery was alone in his interest in a continental commitment for European defence. When he suggested to his colleagues on the Chiefs of Staff Committee that together they should write a paper on Western strategy in a major war, they skirted around the subject. The problem was that the First Sea Lord, Sir John Cunningham, and the Chief of the Air Staff, Lord Tedder, preferred to think in terms of a 'traditional'[74] British maritime/air strategy which paid only limited insurance towards European security and focused instead on the development of highly mobile forces that could be deployed rapidly to trouble spots around the world.[75]

The reluctance of the Air and Naval chiefs to support a continental strategy was consonant with the 'three pillars' strategy that had been agreed in early 1947 by the Chiefs of Staff and the Cabinet. The concept was solidified in the 1947 'Future Defence Policy' paper, which reaffirmed that British strategic interests remained on the periphery of mainland Europe. It argued that the 'three pillars' of British strategy, each of which were essential to the whole structure of Commonwealth strategy, were the defence of the United Kingdom, the control of essential sea communications, and the maintenance of the Middle East as an offensive base.[76]

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[73] Montgomery, *Memoirs*, p. 435-436.

[74] The idea of a 'British way in warfare' has, in recent years, become something of a contested notion. Sir Basil Liddell Hart was the first to advance the concept of a uniquely British approach to the formulation of defence policy that relied almost exclusively on sea power in his 'Economic Pressure or Continental Victories', *The RUSI Journal*, Vol. 76, No. 1 (February 1931). Since then, various authors have argued that the success of British strategy owes as much to the balanced use of land and sea forces operating in conjunction with Continental allies. See, Correlli Barnett, *Britain and Her Army, 1509-1970: A Military, Political, and Social Survey* (London: Penguin, 1970), pp. 187-189; G. S. Graham, *Tides of Empire: Discursions on the Expansion of Britain Overseas* (London and Montreal: McGill-Queen's University Press, 1972), p. 38; Michael Howard, 'The British Way in Warfare: A Reappraisal' in Michael Howard (Ed.), *The Causes of War and Other Essays* (London: Temple Smith, 1983), p. 180. An analysis of these various viewpoints can be found in Hew Strachan, 'The British Way in Warfare Revisited', *The Historical Journal*, Vol. 26, No. 2 (June 1983), pp. 447-461. David French has argued more recently that the defining characteristic of British defence policy has been its inherent flexibility with regards to continental commitments in his *The British way in Warfare*.

[75] John Baylis, 'Britain, the Brussels Pact and the Continental Commitment', *International Affairs*, Vol. 60, No. 4 (Autumn 1984), p. 623.

[76] CAB 21/1800, DO(47)44.

By protecting the home islands, the Middle East, and the sea lanes that connected them, Britain would be able to maintain a variety of strategically placed airbases from which offensive air campaigns could be launched against the Soviet Union in the event of a major war. It was hoped that this would deter Soviet aggression by providing 'tangible evidence of our intention and ability to withstand attack and to hit back immediately'.[77]

It was taken for granted by the Chiefs of Staff that such an air campaign would involve the use of the atomic bomb, and the role to be performed by nuclear weapons in a future war inserted an extra twist into the continental versus maritime/air debate, particularly with regards to how much priority should be awarded to nuclear weapons in strategic planning. The 'Future Defence Policy' worked on the basis that in order to redress the balance of power between the Soviet Union and the Commonwealth Britain should concentrate on increasing and exploiting its scientific lead, particularly in the development of mass destruction weapons.[78] The Chiefs believed that 'the knowledge that we possessed weapons of mass destruction and were prepared to use them would be a most effective deterrent to war itself'.[79] Therefore, 'it must be a cardinal principle of our policy to be prepared, equipped and able to use them immediately'.[80] This is one of the first indications that nuclear deterrence was beginning to supplant conventional defence as the primary requirement for the British armed forces in the hostile international milieu after 1945.

The final years of the 1940s witnessed a seismic shift in Army policy because of developments on the international stage, not least an increase in Soviet subversive action in Europe. It soon became clear to the new Chief of the Imperial General Staff, Field Marshal Sir William Slim, that the New Model Army that he had inherited from Montgomery, with its emphasis on churning out vast numbers of reservists to fight a 'hot' war in 1957, no longer

[77] Ibid.
[78] Ibid.
[79] Ibid.
[80] Ibid.

reflected the changed strategic environment.[81] The Army could not hope to match the ground forces of the Soviet Union man-for-man in Europe, and besides, the reality of the Army's overseas security missions – small wars and counter-insurgency operations – suggested that this trend would continue for the foreseeable future.[82] Indeed, in 1949, the Army Council stated that within the financial limits imposed on the services, it would not be possible for the Army to fulfil its role effectively in the 'cold' war and at the same time make adequate preparations for a 'hot' war. The Council recommended that if either capability had to be neglected, then priority should go to preparing for the 'cold' war.[83] Senior ministers agreed and Attlee informed his colleagues in the December of 1949 that emphasis should be placed on winning the 'cold' since that would circumvent the need to fight a 'hot' war in the future.[84] Again, this change in policy can be seen more as a reflection of the changing strategic environment rather than the simple explanation of Montgomery being replaced as CIGS by Slim, and with it, a more manoeuvre orientated view of war-fighting.

The problem was that the requirements for both 'hot' and 'cold' war were largely competitive. As a 1952 article in the *Royal United Service Institute Journal* explained, the forces required for 'hot' war would be: a full-scale continental army armed with modern weapons and supported by powerful tactical and transport air forces; naval forces designed primarily to protect allied merchant shipping; defensive air forces stationed at key points around the world and supported by anti-aircraft units; and a formidable strategic bomber force with its supporting escort fighter and reconnaissance units. Conversely, the requirements for 'cold' war forces were: flexible and highly mobile internal security land forces with the

[81] TNA, WO 163/57, AC/M(49)3, Minutes of the Nineteenth Meeting of the Army Council, 21 April 1949. See, in particular, the thoughts of Lieutenant General Martel on this matter in TNA, WO 216/288, An Appreciation of the General Situation from the Point of View of Western Nations, 15 December 1948.
[82] French, *Army, Empire, and Cold War*, pp. 45-46.
[83] TNA, WO 163/57, AC/G(49)7, Size and Shape of the Armed Forces, The Harwood Working Party Report, 20 April 1949.
[84] TNA, CAB 129/37, CP(49)245, Defence Estimates 1950-51, 8 December 1949.

necessary transport aircraft; a large pool of strategic reserve land forces that could be transported rapidly to trouble spots anywhere in the world; a reserve of air force units that could transport and support land forces; and a variety of naval units including aircraft carriers, cruisers, landing craft, destroyers, and frigates. The author, an Army Major, agreed that winning the 'cold' war was the priority, but suggested that this could best be done by developing forces for 'hot' war since this would deter the Soviet Union from making the transition from 'cold' to 'hot' war.[85]

There was always the risk, however, of the Army spreading its resources too thinly. Therefore, as Slim informed officers in 1949, the Army would be forced to place greater emphasis on one or the other.[86] Yet, there was no doubt in Slim's mind where the Army's priorities should lie, as this letter to senior officers illustrates:

> The 'Cold War' is actually upon us and the Army is engaged in it to a greater extent than either of the other Fighting Services. If we are defeated in this 'Cold War', we shall be destroyed as a nation without our enemies having to resort to a major 'Hot War'. The 'Unpremeditated War' is always a possibility, but it is not nearly as likely as a 'Premeditated War' forced on us when Russia chooses…It follows that the order of priority should be: First, what is required to wage successfully the 'Cold War'; Second, preparation for a major war in 1957; Third, readiness for an 'Unpremeditated War' before 1957.[87]

Slim recognised, however, that these priorities were not absolute. The Army could not completely neglect the second until the first was assured, nor could it disregard entirely the third until the first and second were satisfied.[88] Indeed, preparations would have to cover both the requirements of 'hot' and 'cold' war. If the two did conflict then Slim believed that preparation for the 'cold' war must take priority since the loss of the 'cold' war by the Allies would relieve the Soviet Union of any need to embark on the 'hot' war in the first place.[89]

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[85] P. A. Tobin, 'Trench Gascoigne Prize Essay, 1952', *The RUSI Journal*, Vol. 97 (1952), pp. 364-377.
[86] TNA, WO 33/2661, CIGS Conference with Commanders-in-Chief at Camberley, 23 May 1949.
[87] TNA, WO 216/314, Slim to Home Army Commanders and BAOR, 23 August 1949.
[88] Ibid.
[89] TNA, WO 33/2675, CIGS Conference with Commanders-in-Chief at Camberley, 22 May 1950.

Strategic considerations aside, Slim's avowal that the 'cold' war was now the Army's primary strategic mission can be seen as a political manoeuvre that would allow the service to maintain substantial, highly trained, regular formations. Since preparations for a 'hot' war centred on developing the RAF's strategic bombing capabilities, the Army hoped that by laying claim to the prosecution of the 'cold' war as its primary mission, this would provide the service with an important and much needed *raison d'etre* in the uncertain post-war security environment.[90]

The second major strategic assessment of the immediate post-war years, the 1950 'Defence Policy and Global Strategy', incorporated all of the major changes that had occurred since the formulation of the 'Future Defence Policy' in 1947. The report reflected Slim's new thinking on defence priorities in stating that winning the 'cold' war was the primary requirement for the British armed forces.[91] The Chiefs of Staff argued that 'cold' war policy was to be related to military strength and that it was only through an adequate show of force that the Soviet Union could be deterred from embarking upon global war.[92] The types of forces recommended by the Chiefs were both conventional and nuclear. While the atomic bomb would be of use as a deterrent and as a weapon of 'decisive importance also in the event of a shooting war' they warned that 'it would be most dangerous to pin our hopes on an easy short cut to victory via the atomic weapon…this means that the Western Powers must build up a strong defensive barrier of conventional forces on land, at sea and in the air'.[93] The conflicting ideas that atomic weapons might prove to be decisive in a future war but that substantial conventional forces would still be needed reflected the entrenched ambiguity in British strategy at the time. [94] As the first chapter of this thesis has shown, the lack of a clear and coherent strategy that outlined

[90] Paul Cornish, 'Learning New Lessons: The British Army and the Strategic Debate, 1945-1950' in Hew Strachan (Ed.), *Big Wars and Small Wars: The British Army and the Lessons of War in the Twentieth Century* (London: Routledge, 2006), p. 74; Strachan, *The Politics of the British Army*, pp. 242-243.
[91] TNA, CAB 21/3503, DO(50)45, Defence Policy and Global Strategy, 7 June 1950.
[92] Ibid.
[93] Ibid.
[94] Baylis, *Ambiguity and Deterrence*, pp. 106-109.

lucidly the nature of a future war and the role to be performed by conventional and nuclear forces characterised British defence policy-making throughout the 1950s.

Between the end of the Second World War and the beginning of the 1950s, the Army's strategic priorities evolved considerably. During his tenure as Chief of the Imperial General Staff, Montgomery conceptualised the Army's primary role as that of preparing for a major land war against the Soviet Union in Europe. Montgomery's desire for a Continental strategy, however, was met with sharp criticism from his colleagues on the Chiefs of Staff Committee who argued that Britain could simply not afford to maintain large conventional forces, and that in a future war involving nuclear weapons, the Army's ability to wage major land campaigns would be muted. This was a view shared by the political leadership, who pushed deterrence as the primary requirement for the armed forces. Yet, by the end of 1948, with Slim at the helm of the Army, the service's focus now shifted towards 'cold' war tasks rather than preparing to conduct major conventional war-fighting operations. This can be seen not only as a logical reaction to changes in the international arena, but as an attempt to claim a new mission area that would secure greater resources from a civilian leadership that was reluctant to invest in forces other than those that would provide the greatest deterrent posture in peace.

Conclusions

By the beginning of the 1950s, two conflicting factors had begun to weigh heavily on British thinking about the changing strategic environment: that the commitments and capabilities of the armed forces had to be brought into harmony if the national economy was to be revived, but that Soviet influence in the world, and particularly in Europe, had to be checked by an adequate show of strength. The result was a shift in British defence policy away from concepts of 'defence' to the notion of 'deterrence'. Accordingly, the civilian leadership stressed consistently the need for Britain's peacetime forces to provide the greatest show of strength in the hope that this would deter the Soviet Union from embarking upon global war. Yet, since

the Labour government was reluctant to invest in the level of forces required for a credible conventional deterrent, policy-makers looked towards strategic nuclear weapons as a means of providing that capability. Indeed, strategic airpower emerged as the only possible means by which decision makers believed Soviet military power could be destroyed before Western Europe, and ultimately the United Kingdom, was overrun. Consequently, as the 1940s came to an end, the roots of a strategy of nuclear deterrence, that was to dominate British strategic thinking throughout the 1950s, were taking hold.

If deterrence broke down, however, the armed forces would have to fight. This was the grim reality of the uneasy peace that followed the end of the Second World War, and an eventuality that could not escape the minds of the Chiefs of Staff and their planning staff. One of the most important principles to emerge out of the Joint Services planning exercises during the second half of the 1940s was concerned with the defence of Europe, or rather, the fallacy of attempting to conduct a conventional defence of the Continent in the face of superior Soviet land power. By the beginning of the 1950s, it had become clear to military planners that the Western Allies could not hope to match the Soviet Union in conventional forces in the European theatre. Even with a permanent American military commitment within the NATO framework, the Western nations would be hopelessly outnumbered. Indeed, all of the Army's planning documents relating to European defence during this period confirmed that it would be extremely difficult, if not impossible, to hold the Red Army on the ground in a future war.

One of the positive aspects to emerge from this assessment was that specificity had been achieved in British strategic planning in the immediate post-war years. Military and political leaders had been able to identify a specific military problem – how to stop the Soviet Union from overrunning Western Europe – on which future planning could be based. Yet, the conclusions drawn from the assessment of that specific military problem was that the defence of Western Europe would be hopeless, the only way to prevent having to fight on the Continent

in the first place was through a posture of nuclear deterrence, and that priority in defence spending should therefore be given to strategic nuclear forces over all other capabilities. Thus, rather than allowing the Army to plan forward on a firm base, the existence of this particular specific military problem helped to create a strategic framework that would only constrain the Army and hinder its ability to adapt to meet what it saw as the most important military challenge of the 1950s – how to defeat the land forces of the Soviet Union in Central Europe. There was one way, however, in which the Army could resolve some of its military difficulties – by exploiting the power of the atom alongside its Atlantic allies. How the British Army of the Rhine and its NATO allies planned to fight a nuclear land war in Central Europe is the subject of the next chapter.

Chapter IV

The British Army of the Rhine and the European Central Front

The British Army of the Rhine (BAOR) was the primary organ of the British Army that was expected to fight with tactical nuclear weapons in the event of global war during the 1950s. Deployed on the European Central Front with its sister formations in Northern Army Group (NORTHAG), BAOR was an important feature of NATO's forward shield of ground forces to deter or, if deterrence failed, to repel a major attack on the Continent. As part of a multi-national military alliance, BAOR's operational role in war-time was constructed and articulated by the higher military authorities in NATO, principally, Supreme Headquarters Allied Powers Europe (SHAPE). By 1953, US tactical nuclear weapons had arrived in Europe in the form of nuclear artillery and rocket batteries, and the following year, NATO's Military Committee accepted a defensive concept based on the first use of nuclear weapons, both tactically and strategically. This new nuclear posture tied BAOR irrevocably to the employment of tactical nuclear weapons in a future ground war, and the operational environment in which it operated became the focal point of British thinking about the utility of tactical nuclear weapons in both a military and political context.

Understanding NATO's strategic rationales for the employment of tactical nuclear weapons is therefore essential to understanding how British political and military leaders assessed the value and utility of those weapons. The presence of a specific military problem in Europe – how to deter or fight a numerically superior enemy in the most effective and economic way – was fundamental to NATO thinking about the deployment of tactical nuclear weapons on the Continent. At the operational level, the broad defensive concepts which outlined how BAOR was expected to operate during active operations were constructed within SHAPE, spearheaded by one of its erstwhile commanding officers, Field Marshal Bernard L. Montgomery. For these

reasons BAOR was tied conceptually to SHAPE's philosophy of war-fighting in the nuclear era.

This chapter analyses the evolution of tactical nuclear war-fighting concepts in NATO with an emphasis on the land battle on the Central Front. The chapter is divided into three sections. The first section examines operational planning in BAOR against the background of national and alliance strategic concepts for the defence of Western Europe. The second section analyses the nuclearisation of NATO strategy using SHAPE's New Approach of the middle 1950s as a vehicle to understanding how military planners conceived the advent of tactical nuclear weapons and their potential military utility to repel a Soviet invasion. Finally, the third section assesses in detail how SHAPE planners and senior officers in BAOR envisaged the conduct of a future nuclear land battle and the roles that were assigned to ground forces in the vital Central Front region.

Operational Planning in BAOR

The British Army of the Rhine began life as a post-war administrative headquarters responsible for supporting the civilian authority in the British zone of occupation, Northern Germany. By 1948, BAOR's total strength was around fifty thousand men assigned to eight brigades which were distributed evenly throughout the British zone with an internal security posture. BAOR headquarters was not capable of conducting combat operations and the brigades themselves were well below war establishment and suffered acute equipment shortages while being lumbered with poorly trained conscripted servicemen. Between 1949 and 1955, force levels in BAOR were gradually increased so that by 1954 it comprised three armoured divisions (6th, 7th, and 11th Armoured Divisions), one infantry division (2nd Infantry Division), and one Canadian infantry brigade (27th Canadian Infantry Brigade), for a total of ten brigades. At the same time, corps-level headquarters, 1 (British) Corps, was formed to assume operational

control of BAOR in the event of hostilities. By the late 1950s, combat readiness in BAOR had improved but it still suffered some military weaknesses because of its shortage of specialist units, such as engineers, and its reliance on national servicemen. The commander-in-chief of BAOR was double-hatted and assumed command in wartime of Northern Army Group (NORTHAG).[1]

In the late 1940s, BAOR's operational plans reflected the ominous, almost hopeless, appreciation of the strategic environment by senior military planners. Undermanned, poorly equipped, and suffering from a lack of coordinated allied planning, the defence of Western Europe was accepted as a lost cause since BAOR would be unable to prevent a rapid overrunning of Northern Germany by superior Soviet forces. No attempt would be made to reinforce BAOR in the event of war. In April 1948, the CIGS, Field Marshal Montgomery, informed the military members of the Army Council that in the event of war, any available land forces based in the UK would not be sent to BAOR 'until it was quite clear that there would be a reasonable chance of fighting successfully on the Rhine'. Until that time came, which the CIGS believed would be no less than five years' time, the land forces based in Germany would be 'withdrawn North-Westwards to the UK' if an attack took place.[2] Because of this gloomy prognosis for the defence of Western Europe, priority in war-time would be given to reinforcing the Middle East Land Forces instead. This was consonant with the 'three pillars' strategy articulated by the British Chiefs of Staff in their Future Defence Policy of 1947 (see Chapter III), which stated that Britain's strategic priorities lay outside of Europe, and that the maintenance of the Middle East 'pillar' was a strategic necessity of paramount importance.

BAOR's best hope if attacked was to conduct a hasty exit from the Continent in the hope of returning at a later date. Montgomery explained to the Chiefs of Staff Committee in June

[1] Robert Evans, 'The British Army of the Rhine and Defense Plans for Germany, 1945-1955' in Jan Hoffenaar and Dieter Krüger (Eds.), *Blueprints for Battle: Planning for War in Central Europe, 1948-1968* (Lexington, KY: University Press of Kentucky, 2012), pp. 204-211.
[2] TNA, WO 216/254, CIGS/BM/30/2235, Plans for Emergency Measures and for Mobilisation, 15 April 1948.

1948 that if armed aggression did develop in Europe then it would be of immense importance that the land forces of the West hold it as far to the east as possible to prevent the territories of the Western European Powers from being overrun. However, because of BAOR's military weaknesses vis-à-vis the Red Army, it would be forced to withdraw from its forward positions along the intra-German border to take up defensive positions on the River Rhine where it was expected to 'fight there until they are pushed further back'. Indeed, according to the CIGS, 'they are, in fact, to fight in Europe until they are pushed out'.[3] However, it was becoming increasingly apparent that any plans to scuttle from the Continent in the event of war would be problematic politically, and a bitter pill to swallow for Britain's Continental allies, who had pledged with the signing of the Brussels Treaty on 17 March 1948 to a policy of defence and security cooperation. For those reasons, the British Chiefs of Staff agreed that:

> Even if it were operationally possible to withdraw our forces, we could not in practice leave our Western Union Allies in the lurch… it is essential to plan with them to stay on the Rhine and fight with what we have got. There would be no question of reinforcement, but we should not withdraw until we are pushed out.[4]

A defence on the River Rhine was therefore the absolute minimum that could be accepted as an insurance policy against Soviet aggression, and any reference to leaving the Continent in the event of war were removed from British plans.[5] Consequently, BAOR and the British Air Forces of Occupation were asked to develop new contingency plans, known collectively as CONGREAVE, for the withdrawal to and defence of the Rhine-Ijssel line in the event of a Soviet attack. CONGREVE planned for the still outnumbered British forces to mount a fighting retreat across Western Germany to take up defensive positions on the best available natural obstacle, a 180 mile line astride the Rhine and Ijssel rivers. The expected speed of the Soviet advance would create problems for BAOR, which would have severe difficulties in timing an

[3] TNA, WO 216/261, Oral Statement by the CIGS to the Chiefs of Staff Committee, 1 June 1948.
[4] TNA, PREM 8/1380, Minister of Defence to Prime Minister, 12 May 1948.
[5] TNA, PREM 8/1380, Minister of Defence to Prime Minister, 4 June 1948.

orderly retreat in the face of a rapid Soviet assault. Planners concluded that there would be a small chance that BAOR would be able to withdraw and regroup satisfactorily on the Rhine-Ijssel line if: they were not taken by surprise, that the plan was fully understood down to unit level, British dependents were evacuated from Germany beforehand, that the limited Royal Engineer resources were employed effectively, and that the ground and air defence of the Rhine crossing were ensured during the withdrawal.[6] The execution of CONGREAVE was certainly no mean feat, and even if the withdrawal to the Rhine was a success, it was doubtful whether BAOR would have been able to hold the position for any meaningful length of time.[7]

On 26 June 1948, the Joint Planning Staff, in consultation with the Joint Intelligence Committee and the UK delegation to the NATO Military Staff Committee, submitted a report on 'Western Union Defence Policy' to the British Chiefs of Staff. The starting point of the report was that the object of Western Union defence policy was to convince any aggressor, and the Soviet Union in particular, that going to war would be unprofitable. The joint planners believed that the only effective means to achieve this object was:

> To give tangible and unmistakable evidence that we will fight if our vital interests are threatened, that we have a reasonable chance of defending them, that we are able to inflict serious injury on the attacker from the outset and will ultimately defeat him.[8]

Although this would be achieved, primarily, through the development of a strong atomic bomber force, the report stressed the need to defend the territorial integrity of Western Europe. In this context, the report identified two distinct principles that would influence all national and alliance thinking about fighting a land war against the Soviet Union in Europe into the 1950s. The first was that the Soviet Union would have to be held on land as far to the east as possible both to physically defend Western territory and to prevent the Soviet Union from launching air

[6] TNA, AIR 20/10513, Joint British Army of the Rhine/British Air Forces of Occupation Appreciation for Exercise CONGREAVE, June 1948.
[7] TNA, WO 216/688, CIGS/BM/31/2524, The Situation in Western Europe and the British Army Problem Arising Therefrom, 27 July 1948.
[8] TNA, DEFE 6/6, JP(48)63(Revised Final), Western Union Defence Policy, 26 June 1948.

attacks on the UK. The second principle was that owing to the Soviet Union's vast preponderance of land forces, the Allies would be forced to find ways to offset this numerical superiority and exploit as far as possible its technical lead – including in the development of weapons of mass destruction.[9]

Three months after this paper was submitted to the Chiefs of Staff Committee, the Joint Planning Staff produced a follow-on report assessing the types of forces that would be required to mount an effective defence of Europe in the most economical manner. The planning staff estimated that in order to fulfil the roles envisaged for Western land forces in a future war the Allies would need to field between 57-77 divisions by D+26 days and have the capacity to increase that strength to 90 divisions by D+6 months.[10] This would be a considerable undertaking that would require ready access to a vast pool of trained land forces along the lines of Montgomery's New Model Army (see Chapter III). Again, the problem of how to deal with the vast manpower resources of the Red Army was raised. Akin to its predecessor, the report suggested that the defence should be based upon a strong natural obstacle, such as a river line, that would canalise advancing Soviet troops, thus exposing them to Allied firepower.[11]

Joint Anglo-American war plans also began to reflect a growing awareness that nuclear weapons could provide a technological solution to the military problem of the Red Army's preponderance in conventional manpower, as plan SPEEDWAY highlights.[12] Plan SPEEDWAY worked on the assumption that at the start of a major war the Western Allies would be thrown immediately on the defensive and that the only offensive action which they could hope to take strategically in the early stages of the war was from the air. U.S. Atomic weapons would have to be employed from the outset, although the Chiefs of Staff were

[9] Ibid.
[10] TNA, DEFE 6/6, JP(48)64(Final), Defence of the Western Union, 20 September 1948.
[11] Ibid.
[12] The terms of reference for the discussions can be found in TNA, DEFE 5/9, COS(48)209, Combined Planning, report by the Chiefs of Staff, 16 December 1948.

uncertain as to how many bombs would be made available – that guarded information remained with their American counterparts. What was clear was that the Allied air forces would not be strong enough to prevent a Soviet build-up in Western Europe and at the same time slow an advance in the Middle East. In Western Europe alone, a total of 11 Allied divisions and 500 tactical aircraft would confront an estimated attacking force of 50 Soviet divisions and 6,000 tactical aircraft. Akin to CONGREAVE, allied land forces would attempt to mount a defence on the Rhine-Ijssel line for as long as they could holdout. Considering the lopsided nature of the military balance, it is not surprising that the Chiefs of Staff arrived at their rather frank conclusion that 'if the enemy presses his attack we cannot hold Western Europe'.[13]

By the summer of 1949 the Joint Planning Staff had pulled together the various strands of their thinking on European defence in their 'Overall Strategic Concept for War in 1957'. What marks this assessment as different to those of the previous year, and something that plan SPEEDWAY was moving towards, was the rejection of a land defence as a viable strategy for repelling a Soviet offensive in Europe. The report stated that a strategy aimed at the destruction of the enemy's ground forces would be engaging the Soviet Union in the field most favourable to her.[14] One of the strengths of the Soviet military machine was its preponderance of manpower; the allies could simply not afford to engage Russia and her satellites in a costly battle of attrition. Therefore, the joint planners concluded that the only possible means by which the Allies could bring a future war to a swift conclusion, and thus prevent the Red Army from overrunning Western Europe, was to launch an atomic air offensive against Soviet centres of control and communication at the outbreak of war.[15] Of course, it was possible, as Lieutenant General Sir Giffard Martel pondered in a private paper, that atomic bombardment would not

[13] TNA, DEFE 5/9, COS(48)210, Digest of Plan SPEEDWAY, memorandum by the Chiefs of Staff, 16 December 1948.
[14] TNA, DEFE 6/6, JP(48)59(Final – Second Revise), Overall Strategic Concept for War in 1957, 20 July 1949.
[15] Ibid.

be the deciding factor in a future war since 'the advantage in the use of the atom bomb to either side is uncertain and it may be that neither side will use this weapon'.[16]

As national appreciations of the strategic environment revealed, the two elementary considerations that faced Western defence planners at the end of the 1940s were how to defend a 4,000 mile wide front in Central Europe against a numerically superior enemy in a manner that was both effective and economic. In 1949, the first NATO strategy document to receive ministerial approval, DC 6/1, 'The Strategic Concept for the Defence of the North Atlantic Area', reflected this dilemma and mirrored the strategic thinking of Britain and the United States. It outlined the requirement for NATO to mount a forward defence of its territory while recognising its inferiority in conventional forces vis-à-vis the Soviet Union and its satellites. For that reason, DC 6/1 maintained that one of the basic undertakings of the defence was to insure the ability to 'carry out strategic bombing promptly by all means possible with all types of weapons, without exception'.[17] Since a forward defence of NATO territory was a political necessity, ways had to be found to bolster Allied defensive capabilities and offset Soviet advantages. As DC 6/1 hinted, new weapons and, in particular nuclear weapons, offered a means to achieve these aims. This was the broad strategic context within which NATO planners conceived tactical nuclear weapons and the military benefits that they might bring.

Thus, military planning staffs in both a national and alliance context were beginning to see nuclear weapons as something of a panacea to the strategic dilemmas of the time. Above all, nuclear weapons appeared to offer a technological solution to the seemingly intractable problem of how to offset Soviet numerical superiority in Europe. The alternative was a conventional defence on the ground but, as has been shown in Chapter I, ministers appeared reluctant to carry the financial burden because of the strain that this would place on the nation's

[16] IWM, Private Papers of Lieutenant General Sir Giffard Martel, GQM 6/3b, The Handling of an Armoured Corps Against Russian Forces, unpublished typescript, July 1950.
[17] NATO, DC 6/1, The Strategic Concept for the Defence of the North Atlantic Area, 1 December 1949, p. 5.

fragile economy. Although Britain had attempted to spread the cost of Continental defence with her allies, there was still the problem of raising adequate land forces within the Western alliance. For example, West German manpower was unavailable for political reasons,[18] and the French Army was, according to Montgomery, wholly unorganised, riddled with political scandal, led by officers who were completely ignorant about the conduct of modern war, and possessed a training organisation that 'would be laughable, if it were not pathetic'.[19] Furthermore, the vulnerability of Allied ports to modern weapons meant that, in the event of war, it would be extremely difficult to dispatch reinforcements from the United Kingdom to the fighting front.[20]

Montgomery, who was then Chairman of the Western European Union's Commanders-in-Chief Committee, described the state of European defence preparations in 1950 as a 'dogs-breakfast'[21], believing it impossible to fight as far forward as the River Elbe with the forces then available.[22] Even with West German manpower, Allied forces would only be able to hold the Soviet Union east of the Rhine for no longer than two to three days.[23] Yet, the official view of the British Chiefs of Staff was that if the plan for the defence of Western Europe was not based primarily on a forward strategy, it would contribute nothing to the security of most NATO countries and might, therefore, bring about a collapse of that organisation.[24] Therefore,

[18] TNA, CAB 21/3503, JP(49)172(Final), Allied Defence Policy and Strategy, 3 March 1950. The main problems were that French objections to raising national German forces could not be overcome, Germany could not then be trusted politically, and any signs of a rearmed Germany within the Western camp may have provoked a Russian preventative war. However, the Attlee government had always realised that some form of West German rearmament was inevitable in the long run. By the early 1950s, with the heightening of Cold War tensions, German political and military integration was now seen as unavoidable if the West hoped to check Communist influence in Europe. See, Spencer W. Mawby, 'Détente Deferred: The Attlee Government, German Rearmament and Anglo-Soviet Rapprochement 1950-51', *Contemporary British History*, Vol. 12, No. 2 (Summer 1998), p. 3 and Saki Dockrill, *Britain's Policy for West German Rearmament 1950-1955* (Cambridge: Cambridge University Press, 1991), p. 13.
[19] TNA, DEFE 32/1, WE/M/93, Western European Defence, 30 March 1950.
[20] TNA, CAB 21/3503, DO(50)58, Ability of the Armed Forces to Meet an Emergency, 21 July 1950.
[21] TNA, PREM 8/1154, FM/33, Field Marshal Montgomery to Minister of Defence, 10 October 1950.
[22] TNA, PREM 8/1154, FM/31, Western Europe Defence – some matters that give cause for alarm, Memorandum by Field Marshal Montgomery, 19 September 1950.
[23] TNA, PREM 8/1201, Address by Field Marshal Montgomery to the Senior Officers of the Brussels Treaty Powers, 5 May 1950.
[24] TNA, DEFE 5/31, COS(51)322, Defence of Europe in the Short Term, 31 May 1951.

military planners had little choice during the late 1940s but to work on the basis of mounting a conventional defence of Europe, however intractable the problem appeared to be. If all else failed, BAOR and its partners would simply have to retreat into specially prepared bridgeheads in Europe from which a counter-attack could be launched at a later date.[25] Even through the employment of 'strategic demolition munitions' and other ruses, it was likely that yet another British army would again be swept from the Continent at the beginning of a major European war.[26]

These assessments of the military situation resulted in some contemporary observers such as Maj.-Gen. J. F. C. Fuller, Sir Basil Liddell Hart, and Lieut.-Gen. Martel criticising the Army for what they claimed was a retrograde step in the doctrinal evolution of the service. Often, this condemnation was directed at Montgomery personally on the charge that it was his apparent preference for fighting neat, positional, and methodical battles that cast an unwelcome shadow over the Army, forcing it to reject a more 'modern' manoeuvre based approach to European defence in favour of one that was more positional: 'what caused us after the war to turn our backs on all this great progress that was being made in the art of war, and to return to position warfare?' wrote Martel in 1950.[27] For that well-known champion of mobile warfare, the answer was clear, arguing that since 'the Field Marshal is a very great expert on Position Warfare… [and] does not believe much in mobility' he was compelled to demand 'large old fashioned manpower armies to hold the Elbe or the Rhine in position warfare'.[28] This is a somewhat muddled appreciation of the situation. What Montgomery's detractors failed to realise, and

[25] Ibid.
[26] See, TNA, WO 216/346, General Collins to Field Marshal Slim, 10 July 1950; TNA, WO 216/346, CIGS/BM/38/4074, Field Marshal Slim to General Collins, 13 October 1950; TNA, DEFE 5/31, COS(51)367, Demolitions in Germany, 15 June 1951.
[27] IWM, Private Papers of Lieutenant General Sir Giffard Martel, GQM 6/3b, Modern War, unpublished typescript, n.d. [approx. March 1950].
[28] IWM, Private Papers of Lieutenant General Sir Giffard Martel, GQM 6/3b, Vital Questions and Suggested Answers, unpublished typescript, March 1950. Martel believed that part of the problem was that Montgomery had surrounded himself with 'Yes Men'. IWM, Private Papers of Lieutenant General Sir Giffard Martel, GQM, 6/3b, What has Gone Wrong at the War Office, unpublished typescript, n.d. [approx. 1950].

what was continually reaffirmed in every strategic assessment made by military staffs whilst Montgomery was CIGS, was that for political reasons West Germany had to be held as far to the east as possible, which in turn, required holding a position on the Rhine. In his dual roles as the professional head of the British Army and as a member of the Chiefs of Staff Committee, Montgomery's hands were tied by political and geo-strategic realities, and consequently, BAOR was tied to the Rhine.

The adoption of a Rhine strategy by BAOR proved to be short-lived, however, since it was forced through alliance politics to play its part in a forward defence, requiring a defensive position even closer to the intra-German border. The views of the British Chiefs of Staff were becoming increasingly stubborn regarding the perceived requirement for a military presence east of the Rhine. For example, on 3 July 1950, the Chairman of the UK delegation to NATO's Military Committee wrote to the secretary of the British Chiefs of Staff Committee suggesting the initiation of an objective study into the formulation of a plan for a defence well west of the River Rhine.[29] The forthright reply by the Chiefs was that the effects of such a plan on the morale of the Continental countries, especially France, would be very serious, and that the right policy was to convince all Western nations concerned that it was vital to defend the Rhine-Ijssel line at all costs.[30] Indeed, even a Rhine strategy was becoming increasingly difficult to sell because of the political connotations associated with the abandonment of large parts of West German territory. This led the Chiefs of Staff to conclude in 1950 that:

> The present military vacuum between the Rhine and the Elbe cannot endure and that continued planning for defence of the Rhine line will lead West Germany to conclude that, since they are to be abandoned by the west in the event of war, they must reinsure with the east.[31]

[29] TNA, AIR 20/10138, COS(50)244, North Atlantic Treaty Defence Plans – Preparation of Short Term Plan in Western Region, 10 July 1950.
[30] TNA AIR 20/10138, COS(50)111, Preparation of Short Term Plan in Western Region, 17 July 1950.
[31] Cited in Evans, 'The British Army of the Rhine', p. 207.

Doubts still remained regarding the ability of BAOR and its sister formations to fill the military vacuum with which the Chiefs of Staff were so concerned. Likewise, the British Joint Planning Staff, after reviewing the latest SHAPE emergency defence plan, were still sceptical of the ability of BAOR to resist a determined Soviet attack and believed that with the forces then available the plan was 'unrealistic' and concluded that the Rhine-Ijssel line could not be held. Nonetheless, they appreciated that 'for political reasons SHAPE cannot plan on anything less than the Rhine Strategy'. They drew attention to SACEUR's assumption that atomic weapons would be used by both sides and wondered whether this meant that he wanted his subordinate commands to include the tactical use of the atomic bomb into their plans.[32]

Indeed, manpower anxieties gripped the first Supreme Allied Commander Europe (SACEUR), General Dwight D. Eisenhower, who was as equally convinced as his national counterparts that a forward defence would need to be far to the east in West Germany. Eisenhower wanted to mount a defence on the River Weser, but to achieve this he needed boots on the ground. In February 1952 the North Atlantic Council agreed to provide them. At a meeting in Lisbon the allies ambitiously agreed to build up their conventional forces to 96 divisions and 9000 aircraft by 1954 to counterbalance the Soviets Union's manpower superiority in Europe.[33] The Lisbon force goals were fanciful, and the British Chiefs of Staff soon realised that Britain and her continental allies would not be able to meet their scheduled contributions of land and air forces. This was just the beginning of a long struggle for NATO throughout the 1950s to provide the level of conventional forces that subsequent SACEURs believed were required in order to conduct a successful defence of Western Europe.

The subsequent strategy document accepted by the North Atlantic Council in the wake of Lisbon on 9 December 1952 was MC 14/1, 'NATO Strategic Guidance'. MC 14/1 reaffirmed

[32] TNA, DEFE 6/19, JP(51)217(Final), SHAPE Emergency Defence Plan – Report by the Joint Planning Staff, 4 January 1952.
[33] See the report of the Temporary Council Committee of the North Atlantic Council in TNA, CAB 129/49, C (52) 49, 19 February 1952.

the requirement articulated three years earlier in DC 6/1 for the Allies to carry out strategic air attacks promptly with all types of weapons.[34] However, it also articulated the emerging consensus of the political necessity to protect the territorial integrity of NATO countries stating that 'the primary effort must be devoted to delaying and arresting the main enemy thrust'.[35] In this context, the paper identified Western Europe as the decisive theatre which must be held at all cost. Undeterred by the pessimistic national assessments of the ability of ground forces to stem the red tide, MC 14/1 posited that the land battle should 'aim at delaying and weakening the enemy's advance with a view to holding him as far to the east of the Rhine as possible'.[36] Beatrice Heuser has described MC 14/1 as being 'the most far-reaching of any NATO strategy' in that it aimed not only to repel a Soviet offensive but to exact a decisive defeat on the USSR.[37] Considering that national planning staffs believed that there was little hope of mounting a meaningful forward defence with the forces then available, let alone to destroy the Soviet Union as a political entity, radical change would be required.

NATO and the 'New Approach'

A major recast of NATO strategy subsequently came a year later. In 1953, under the guidance of the Supreme Allied Commander Europe (SACEUR), General Alfred M. Gruenther, SHAPE planners embarked on a 'New Approach' to the formulation of NATO defensive concepts. These specialist planners, destined to be known collectively as the New Approach Group (NAG), constituted the first major special-study group to operate over an extended period of time within SHAPE. The NAG was tasked with strengthening the overall capability of Allied forces to deal effectively with a Soviet led invasion from the East, particularly in the vital

[34] NATO, MC 14/1 (Final), NATO Strategic Guidance, 9 December 1952, p. 11.
[35] Ibid., p. 12.
[36] Ibid., p. 18.
[37] Beatrice Heuser, 'Victory in a Nuclear War? A Comparison of NATO and WTO War Aims and Strategies', *Contemporary European History*, Vol. 7, No. 3 (November 1998), p. 315.

European Central Front region. One of the defining features of the NAG's 'New Approach' was the possibility of incorporating tactical nuclear weapons into the Allied armoury and integrating those weapons within the broader operational concepts for the defence of Western Europe. Ultimately, the work of the NAG would recast radically NATO strategy with significant implications for its ground forces, and BAOR in particular.

The origins of SHAPE's thinking about the tactical application of nuclear weapons can be traced back to the first of many Command Post Exercises (CPX) orchestrated by the Deputy Supreme Allied Commander Europe (DSACEUR), Field Marshal Montgomery. CPX I was held at SHAPE from 7 to 11 April 1952, and was lauded by Eisenhower as being 'a milestone in SHAPE's accomplishments'.[38] More than 200 allied officers of general rank attended Montgomery's exercise and were confronted forcibly with the military problems with which they could be expected to face if war broke out in Europe. The purpose of the exercise as articulated by Montgomery was to take 'the military problem that confronts us in Europe and, with that background, to study the stage management and conduct of mobile operations in the early stages of a war'.[39] The strategic setting for the exercise envisaged the employment of the US 6th Fleet, a Fast Carrier Task Force with atomic capability, and a study of the tactical application of nuclear weapons. It became clear during the exercise that the examination of the effects of new weapons was a priority. Tactical mobility would be essential since, according to the Field Marshal, echoing a passage from the British Army's 1950 doctrinal pamphlet *The Conduct of War* (see Chapter VI), 'the higher commander who can prevent the enemy from moving, and who possesses mobility himself, will succeed'.[40] Although greater mobility and the tactical use of nuclear weapons might act as force multipliers in the face of certain Soviet

[38] NATO, SHAPE History: Origin and Development of SHAPE, p. 335.
[39] NATO, OT/CPX-1/1705/26, CPX I, Information for the Press, 2 February 1952.
[40] NATO, SHAPE CPX I, Final Address by DSACEUR, 11 April 1952.

manpower superiority, Montgomery stressed that ultimately the 'one factor in which we can enjoy a great advantage, both at the outset and throughout, is in brains'.[41]

In May 1952 General Matthew B. Ridgway succeeded Eisenhower as SACEUR, and thinking in SHAPE about the use of nuclear weapons in the land battle progressed further. A note sent by the DSACEUR to Ridgway not long after the latter's appointment read that 'the mighty weapon of atomic airpower, used in conjunction with small and highly efficient land forces, should enable us to hold off an aggressor…'.[42] Still heavily outnumbered, however, Ridgway hoped that the integration of nuclear weapons with conventional ground forces would make up for the shortfall in Allied conventional divisions and therefore counter-balance Soviet manpower superiority.[43] Shortly before Ridgway's departure from SHAPE, he submitted to the Standing Group a report on the estimated force requirements for 1956 which constituted the first in-depth study of nuclear weapon use in relation to NATO strategy. The report emphasised that the marriage of conventional and nuclear forces would allow the allies to initiate an instant and powerful reaction to enemy attack that might allow the attainment of decisive results in the first few months of war. Importantly, the employment of conventional forces in this nuclear context would require a rebalance of the current planned forces.[44] This statement proved controversial, however, as it indicated that an increase, rather than decrease, in force levels would be necessary to absorb the greater casualties that would result from the use of weapons of mass destruction.[45]

Subsequent training in SHAPE reflected the increasing nuclearisation of NATO strategy. In March 1953, CPX II explored in greater detail the problems 'connected with the defence of Europe against a threat from the East'. The exercise was set in the Northern and Southern

[41] NATO, AG/1705/SEC, CPX I, Final Address by SACEUR, 11 April 1952.
[42] TNA, DEFE 13/1080, FM/67, Note for Gen. Ridgway by Field Marshal Montgomery, 18 July 1952.
[43] NATO, SHAPE History: Changes in Command Structure, 1952-1953, pp. 255-256.
[44] Ibid., pp. 293-294.
[45] Gregory W. Pedlow (Ed.), *NATO Strategy Documents, 1949-1969*, pp. XVII.

Commands to emphasise the importance of the flanks of the NATO area. In addition, a day would be spent 'discussing the impact of atomic weapons in modern war'.[46] In his closing address Montgomery said that if properly used, tactical nuclear weapons could be a 'battle-winning factor of the first magnitude'. The survival of Allied ground forces in the opening stages of a Third World War might depend, warned the Field Marshal, on whether they could learn to use tactical nuclear weapons properly and capitalise on the tremendous firepower that they would give commanders on the battlefield. In line with current thinking within the British Army, which will be examined in the following chapters, he stated that 'our job is to so organise and conduct the battle that we force the enemy to present us with targets suitable for atomic attack'. Montgomery believed that the ability to bring about those conditions might well be the decisive factor in a future war.[47]

In July 1953, Gen. Alfred M. Gruenther succeeded Ridgway as SACEUR. Under his command NATO's weapon began to be hammered into shape in the nuclear forge. NATO military leaders still maintained that they lacked the necessary combat ready divisions, reserves, air-defence units, command-and-control systems, logistical systems, and other resources to guarantee a successful defence of Western Europe in the event of a Soviet attack. Therefore, the only deterrent to war remained the capability of the US Strategic Air Command and the UK Bomber Command to carry out a nuclear attack upon the aggressor's homeland. SHAPE staff felt, however, that this restricted SACEUR's options of response to any other form of limited contingencies that might not warrant the immediate and massive use of strategic nuclear weapons. Consequently, on Montgomery's insistence, Gruenther established the 'New Approach Group' to recast NATO defensive concepts in order to strengthen the overall

[46] TNA, DEFE 5/42, COS(52)571, SHAPE Exercise CPX Two, 29 October 1952.
[47] NATO, DSAC 1705/2, SHAPE CPX Two, Final Address by DSACEUR, 13 March 1953.

capacity of the Allies to cope with an attack and to allow greater optional selectivity for SACEUR in his responses.[48]

This new emphasis on nuclear weapons reflected major changes that were occurring in U.S. defence policy. The administration of the erstwhile SACEUR, President Eisenhower, had begun to explore means by which greater military effectiveness could be extracted from a contracting defence budget. Akin to SHAPE, U.S. military chiefs believed that nuclear weapons offered a solution to the strategic and economic dilemmas of defence in the changing international environment, and thus was born the 'New Look' in US defence policy. This transformation in policy was articulated in NSC 162/2 of October 1953 which stated that 'the major deterrent to aggression against Western Europe is the manifest determination of the United States to use its atomic capability and massive retaliatory striking power if the area is attacked'. If deterrence broke down and hostilities flared up then the US would 'consider nuclear weapons to be as available for use as other munitions'.[49] As was shown in Chapter II, American defence policy-makers were beginning to see tactical nuclear weapons as force multipliers that could supplant expensive manpower-intensive divisions.

Gruenther duly informed the North Atlantic Council in December 1953 that his headquarters was now basing its plans for the defence of NATO territory on the basis of the probable effects of nuclear weapons. This would require the 'skilful judgement of the impact of new weapons and a keen appreciation of the military art' and would take several months before the survey could be submitted through the Standing Group to the Council. Echoing the warnings of his predecessor, General Ridgway, Gruenther warned the Council that a greater reliance on nuclear weapons might not reduce force requirements substantially, but the ways in which nuclear weapons could contribute to the defence on the Central Front was being

[48] NATO, SHAPE History: The New Approach, 1953-1956, pp. vii-viii.
[49] William Z. Slany (Ed.), *Foreign Relations of the United States, 1952-1954: National Security Affairs*, Vol. 2, No. 1 (Washington, DC: United States Government Printing Office, 1979), pp. 585-586, 593.

studied.[50] The U.S. Secretary of Defence Charles E. Wilson, supported his countryman's cautious sentiment informing the Council that although his government endorsed the new studies being conducted at SHAPE it would be unwise to pre-judge what their conclusions might be and that 'no nation should believe that these new weapons and new techniques would necessarily offer a 'magic' solution to their problems'.[51]

Four months later, military officials and civilian dignitaries from all NATO nations, except Iceland, gathered at SHAPE to study the problems of the defence of Western Europe during CPX IV. This provided Gruenther, Montgomery, and the Air Deputy, General Lauris Norstad, with the opportunity to explain and to sell the New Approach concept. Before the exercise commenced the SACEUR personally briefed the national Foreign Ministers on the salient point of the new approach, telling them:

> If you accept this philosophy on which we are working, you should understand clearly that upon approval of our plan, you are committed to the use of the atomic bomb. If the atomic bomb is not used, we shall surely need additional forces.[52]

As CPX IV was in full-swing, U.S. Secretary of State, John Foster Dulles, was similarly selling a nuclear emphasis policy to his civilian counterparts in the North Atlantic Council. As was shown in Chapter II, Dulles had embarked on a public campaign to market tactical nuclear weapons as being less drastic than their strategic counterparts and more akin to conventional armaments. This rhetoric he now took to the heart of the Atlantic alliance. During a closed ministerial session of the Council on 23 April 1954, he informed members that nuclear weapons should now be treated as having become 'conventional' and that it should be NATO policy 'to use atomic weapons as conventional weapons against the military assets of the enemy whenever and wherever it would be of advantage to do so, taking account of all relevant

[50] NATO, C-R(53)55, Meeting of the North Atlantic Council, 15 December 1953, p. 2.
[51] C-R(53)55, p. 5.
[52] SHAPE History: The New Approach, 1953-1956, p. 61.

factors'.[53] Both the U.S. government's 'New Look' and SHAPE's 'New Approach' therefore sought to tie irrevocably nuclear weapons to NATO conventional forces. As Gruenther and Dulles informed the national ministers, this was the only means by which the Alliance could mount a successful defence of Western Europe against a Soviet onslaught effectively and economically.

A report by the North Atlantic Council on the 1954 Annual Review demonstrates that Dulles was successful in convincing NATO of the merits of tactical nuclear weapons. It stated that:

> It has been accepted that the NATO nations cannot build up or maintain land forces equal in size with those of the USSR and its satellites and that reliance must be placed on skilful employment of new weapons coupled with maximum development of superior quality in the NATO forces.[54]

This statement suggests that NATO was beginning to come to terms with the manpower problems that had plagued the Alliance since its inception. The acceptance that quality, and not quantity, of weapon systems and forces would provide the key to unlocking Soviet vulnerabilities allowed radical change in Alliance strategy. The new weapons came in the form of U.S. nuclear-capable Honest John rocket batteries which the Council was informed would be attached to American troops in Europe by the end of 1954. The Pentagon was adamant that this deployment would 'constitute a significant addition to the overall NATO defensive capabilities'.[55]

This new attitude of realism paved the way for the development of a new strategic concept by the Military Committee, who had followed closely the work of the NAG during the previous years. The subsequent document was MC 48, 'The Most Effective Pattern of NATO Military Strength for the Next Few Years', which was approved by the North Atlantic Council on 22

[53] William Z. Slany (Ed.), *Foreign Relations of the United States, 1952-1954: Western European Security*, Vol. 5, No. 1 (Washington, DC: United States Government Printing Office, 1986), p. 512.
[54] NATO, C-M(54)100 Part II, Report on the 1954 Annual Review, 26 November 1954, p. 1.
[55] NATO, C-R(54)42, Meeting of the North Atlantic Council, 12 November 1954, p. 4.

November 1954. Consonant with SHAPE policy, MC 48 stated that NATO would be unable to prevent the rapid overrunning of Europe unless it employed nuclear weapons 'both strategically and tactically'.[56] To achieve these aims on the ground, 'forces in being' would be required with an integrated atomic capability. The document acknowledged that the Soviets would have numerical superiority in field armies but emphasised the NAG's view that this advantage would be nullified because of the 'vulnerability of their tactical formations, transportation systems and lines of communication to continued atomic attacks'.[57] The Military Committee also expressed in the document confidence in SHAPE's planned system of operations, stating that the use of nuclear weapons would strengthen its defensive posture.[58] With the acceptance of MC 48 by the Council, SHAPE was granted the political authorisation for planning the defence of Western Europe on the use of nuclear weapons.

With planning changing so rapidly, the North Atlantic Council asked the Military Committee to provide further information for the benefit of member governments on how the strategic reassessment outlined in MC 48 might affect national defence programmes. This request led the Military Committee to issue the document MC 48/1, which did not supersede MC 48, but simply provided additional information. It reaffirmed the importance of a forward strategy as laid out in MC 48, but suggested that this might be delayed for up to two years because of the inability to work out the mechanics for a German manpower contribution.[59] On the subject of the tactical application of nuclear weapons in the land battle, it merely informed readers that experiments were being conducted on the most suitable force organisations and tactical dispositions for land warfare.[60] With both MC 48 and MC 48/1, NATO member

[56] NATO, MC 48 (Final), The Most Effective Pattern of NATO Military Strength for the Next Few Years, 22 November 1954, p. 3.
[57] Ibid., p. 7.
[58] Ibid., p. 11.
[59] NATO, MC 48/1 (Final), The Most Effective Pattern of NATO Military Strength for the Next Few Years – Report No. 2, 9 December 1955, pp. 3-4.
[60] Ibid., p. 6.

governments had agreed to a strategy for the defence of Europe that centred on the first use of nuclear weapons, both in a strategic role against Soviet military and industrial targets, and in a tactical role within the theatre of operations. The overarching reason was because, as Gruenther informed the North Atlantic Council, 'there could be no balance against the massive strength of the Soviets, if war was to be fought on a conventional basis. It was for that reason that his command was working on the basis of atomic strategy'.[61] This announcement underlined what had been increasingly obvious since the inception of the Alliance – that a defence using only conventional forces would be impossible. As Beatrice Heuser states succinctly, with the adoption of MC 48 'the Europeans henceforth systematically rejected conventional parity with the Warsaw Pact as an aim for NATO'.[62]

The Defence of the Central Front

The new nuclear posture of the alliance meant that NATO ground forces were now tied irrevocably to the use of tactical nuclear weapons from the outset of a future war with the Soviet Union. Strategically defensive and committed to a forward defence along the intra-German border, the conventional troops of SACUER's 'shield' forces would be required to exploit nuclear weapon use to defeat a Soviet penetration into Western Europe. The defence of the vital Central Front region was conceptually one of the most difficult challenges facing NATO defence planners during the 1950s. Although national armies held their own visions of how a future nuclear ground war might progress, the overarching conceptions for the defence of the Central Front were formulated by SHAPE planners, spearheaded by the DSACEUR, Britain's most famous and controversial battlefield commander of the Second World War, Field Marshal Montgomery.

[61] NATO, C-R(55)43, Meeting of the North Atlantic Council, 11 October 1955, p. 12.
[62] Heuser, 'Victory in a Nuclear War?', p. 318.

Montgomery had begun to think seriously about the tactical application of nuclear weapons during CPX II, where he explored the problems of fighting a future land war in the modern technological environment. He urged commanders to learn the lessons of past wars and maintained that the influence of the linear tactics of the 1914 era, and of the opening stages of the 1939-45 war, were still having a dangerous effect on military thinking within NATO. He criticised the popular idea that unless there was sufficient strength in land forces to form a continuous, impenetrable line across Europe then there could be no hope of a successful defence. Montgomery believed this notion to be 'madness', not least because it would be economically ruinous to provide land forces on such a scale. Rather, Montgomery advocated a more manoeuvrist approach to offensive and defensive operations in modern warfare:

> Attack is a matter of concentrating secretly a strong mobile force which is capable of smashing through the defender's front and then of maintaining the advance to a great depth with a speed which constantly overtakes the defender's ability to recover his balance. The defenders ability to react is throttled by the flexible use of air power.[63]

The proper defence against this kind of attack he believed had three essentials:

> The attacker must not be able to gain complete mastery in the air. The defender must not be knocked off his balance by the first onslaught. The defence must be able to react with swift sharp blows before the attack has had time to exploit its initial advantage.[64]

In order to conduct manoeuvre warfare of this nature, Montgomery urged for greater mobility and flexibility in NATO ground forces. This, he saw as the key to victory over the Soviet masses since 'if we can move more quickly than the Russians, and can concentrate a hard-hitting punch against them when they are off-balance, we can defeat them'.[65]

BAOR commanders were also thinking about increasing operational mobility as a result of objective appraisals of the challenges facing their commands in a future land war. The first BAOR C-in-C to confront the tricky business of planning for a forward defence of Western

[63] NATO, DSAC 1705/2.
[64] Ibid.
[65] Ibid.

Germany was General Sir John Harding, who was under no illusion that NORTHAG would struggle to arrest a determined Soviet attack. In 1952 Harding outlined three major problems facing his command. First, was to guarantee that his forces were not caught by surprise from the outset and knocked off-balance. The issue of early-warning procedures was then being studied by SHAPE and was out of his control. Second, was to ensure that his forces would be able to fall back to the main Rhine-Ijssel position without interference from the enemy. Harding could only afford to deploy light covering forces to delay the enemy while the main body withdrew to the main defensive position so strategic demolitions and stay-behind parties would be essential. Third, was the problem of being able to halt decisively the enemy on the Rhine-Ijssel line. Harding predicted that he would require at least twelve divisions deployed and ready to fight by D+5 at the latest to make this happen. Existing plans only allowed for eight divisions and a single infantry brigade group at the outset.[66]

Reflecting thinking in SHAPE, Harding and his successor as BAOR/NORTHAG C-in-C, General Sir Richard N. Gale, planned to conduct mobile operations with the forces that they had available. Akin to their American counterparts, British Army planners sought to learn lessons from the *Wehrmacht's* experiences in fighting the Soviet Union during the Second World War.[67] Amongst the lessons that the British extracted were that the Soviets struggled to overcome carefully prepared delaying measures, were vulnerable to sudden counterattacks by armoured forces, and that its commanders found it difficult to cope with the unexpected.[68] This pointed towards the need for a manoeuvrist approach to the conduct of operations when dealing with the Soviet masses. Indeed, this was a notion that the then retired but still influential prophet of armoured warfare Giffard Martel supported, who as Head of the Military Mission to the

[66] TNA, WO 106/6051, Appreciation by Gen. Sir John Harding C-in-C BAOR of the Situation, 17 January 1952.
[67] For an account of the U.S. Army's attempts to learn from the German experience see, Kevin Soutor, 'To Stem the Red Tide: The German Report Series and its Effects on American Defense Doctrine, 1948-1954', *Journal of Military History*, Vol. 57 (1993), pp. 653-689 and James A. Wood, 'Captivated Historians, Captivated Audiences: The German Military History Program, 1945-1961', *Journal of Military History*, Vol. 69 (2005), pp. 123-148.
[68] French, *Army, Empire and Cold War*, p. 94.

Soviet Union during the Second World War, witnessed first-hand Soviet reactions to German mobile operations. Martel wrote in 1950:

> So long as we are content with killing Russians and have no intention of occupying any large part of Russia, then there seems to be no necessity for any large number of normal formations [infantry divisions] in addition to the armoured divisions… I wish more people could have had the opportunity, which I had, of hearing from the Russian commanders the tremendous effect of large scale operations by really mobile armoured forces, which they had to face in 1941.[69]

Martel wrote to General Gale arguing the requirement for the British Army to conduct mobile operations against the Soviet Union in a future war rather than static or semi-mobile operations.[70] Gale replied by stating that this was in fact the official view of the Army and that the philosophy of mobile warfare was stressed continually in its teaching. Gale illustrated the Army's thoughts on this matter to Martel by highlighting that by the end of November 1951 there would be no less than three armoured divisions in Germany to one infantry division.[71]

The composition of 1 (British) Corps was therefore geared towards conducting mobile operations. Indeed, because it lacked the sufficient quantity of men and material, BAOR had no choice but to fight a mobile battle and to employ many of the techniques associated with manoeuvre warfare. The wide frontages of NORTHAG's sector, coupled with Soviet numerical superiority, meant it would have been impossible to fight a static battle of attrition with the forces that were available. The problem was that a positional defence under these circumstances would leave gaps uncovered by fire between the defensive positions which could easily be exploited by Soviet forces to infiltrate the position and destroy formations piecemeal.[72] This predicament explains why 1 (British) Corps was top-heavy in armour, as Field Marshal Slim explained to senior officers in 1951:

[69] IWM, Private Papers of Lieutenant General Sir Giffard Martel, GQM 6/3b, The Handling of an Armoured Corps Against Russian Forces, unpublished typescript, July 1950.
[70] TNA, WO 216/408, Notes on Mobile Armoured Forces, 20 July 1951.
[71] TNA, WO 216/408, Gale to Martel, 27 July 1951.
[72] TNA, WO 216/778, Generals' Convention at Warminster, 1951.

> I do not know whether any of you have noticed, but the composition of the British Army of the Rhine, for which I am afraid I am responsible if you do not like it, is at the moment one infantry division and three armoured divisions because I thought there were going to be a lot of gaps.[73]

This was the tactical setting against which General Sir Richard N. Gale, BAOR C-in-C from 1952-1957, had to plan NORTHAG's defence. Gale was tied to a forward defence of Western Germany for political reasons, but the availability of nuclear weapons was also beginning to have an effect on BAOR's operational plans, making a forward defence a military necessity. SACEUR's strategy now relied on the preponderance of strategic nuclear firepower to retard a Soviet offensive which relied on the use of certain bombing and navigational aids located in Western Germany. This meant that BAOR had to assist the U.S. Strategic Air Command and U.K. Bomber Command by holding those stations for the period required for the initial air offensive. Gale's plan was to deploy the minimum troops necessary to protect the bombing aids for 48 hours, after which they would make a clean break for the main defensive position on the Rhine-Ijssel. With the slender forces available to Gale it was important that the covering forces be extricated quickly after the 48 hours so as not to risk insufficient strength on the Rhine by becoming bogged down in a running battle.[74]

Montgomery's concept of the nuclear land battle, which he was evolving in his command, resembled that of his countrymen. He envisaged that in the central European region a tough resilient shield of mobile ground forces would be anchored on strong troop concentrations on the flanks in Hamburg to the north and Bavaria to the south. In the middle lay the mass of central Europe which was interspersed with a number of major rivers, all of which ran roughly north to south. The DSACEUR proposed that these rivers should form a forward obstacle line that was protected by a light screen of mobile covering troops whose job was to canalise

[73] Ibid.
[74] TNA, WO 216/888, Appreciation by General Sir Richard Gale Commander in Chief BAOR and Commander Northern Army Group, 29 September 1955.

attacking forces so that they present a profitable target for nuclear strikes. Behind the obstacle line would be deployed an extremely mobile corps of hard-hitting units that would range swiftly from one end of the obstacle line to the other conducting local counter-attacks and breaking up the enemy formations.[75] Montgomery drafted a directive on the behalf of General Gruenther to be distributed to NATO Commanders-in-Chief outlining this vision of nuclear war on the Central Front. It stressed that it was important to study the application of new weapons so that NATO's ground forces would not be caught in a future war tied to out-of-date methods fighting with atomic weapons. It urged that:

> The first essential in our common examination of the problem of future war on land, is to free our minds from the 1944/45 philosophy, to project our thoughts forward to the time when a liberal number of atomic weapons will be available on both sides, and to use this weapon as the principle agent around which the battle will be planned and fought.[76]

NATO military planning staff agreed with this proposition, highlighting in a memorandum to the SACEUR that 'the conduct of the land operations will be so different from the past, that it would be unwise to judge their course and eventual outcome solely by conventional standards and comparison with experiences from the last war'.[77] Montgomery's views on the pattern of a future atomic war subsequently became generally acceptance within SHAPE. The first stage in the progressive destruction of the enemy forces would begin when an attacker came into contact with the forward screen. This was a thin but continuous line of M(obilisation)-Day light forces, based on an obstacle, whose function was to locate and report on enemy movements. Based on highly mobile armoured reconnaissance and mobile infantry/tank groups, the screen forces would possess adequate firepower to force the enemy to concentrate in order to cross the obstacle, thus developing profitable targets for atomic weapons. Located in depth in the

[75] SHAPE History: The New Approach, 1953-1956, p. 54.
[76] LHCMA, P. N. White Papers, SACEUR's Directive to Commanders-in-Chief on the Future Form of the Battle in Europe, 6 May 1954.
[77] NATO, SGM-1-55, Standing Group Memorandum to SACEUR, Enclosure 'A' – Assignment of Land Forces, 10 January 1955, p. 9.

rear of the obstacle was the main force. These formations contained three elements: infantry divisions capable of heavy and sustained fighting to hold and fight for dominating ground; mobile groups reminiscent of the light forces to cover the gaps between the main defensive areas; and highly mobile armoured divisions to counterattack and exploit deep atomic strikes. This force would fight the main battle and continue the process of reducing the enemy's superiority in numbers. The fighting troops would be reinforced by post M-Day formations which would mobilise in echelons behind an obstacle in the rear of the main battle area. A strategical reserve would be provided by M-Day formations positioned further to the rear, probably outside of the European continent, for example, in the United Kingdom.[78]

In his role as pseudo Inspector General for NATO, Montgomery was responsible for articulating this strategic vision to the German military authorities, the Federal Republic of Germany having been formally incorporated into the Alliance in May 1955. In a meeting with the commander of Allied Forces Central Europe, French army officer Marshal Juin, in August 1955, Montgomery noted that 'it is important we both sing the same song when discussing land forces with the Germans'.[79] The song Montgomery had in mind was one he had been singing for the past year – to mount an effective defence on the ground in Central Europe a light frontier force would be required to force an attacking enemy to concentrate after which they would be hit with tactical nuclear strikes and counterattacked by mobile armoured forces. In this defensive conception, Montgomery earmarked the anticipated German land forces as performing the vital role of the light screen of mobile covering forces that would develop profitable nuclear targets for Allied atomic weapons. On 8 September 1955, Montgomery travelled to Bonn to lay out this new philosophy of modern war and was successful in promoting his vision of military operations on the Central Front to the German authorities who

[78] LHCMA, P. N. White Papers, The Philosophy of the Future Air/Land Battle, Note to DSACEUR, 20 June 1955.
[79] LHCMA, P. N. White Papers, Notes for Discussion Between Marshal Juin and Field Marshal Montgomery, 24 August 1955.

supported a 'fluid strategy based on mobile forces as against a conception of static or field defenses'.[80]

Thus, SHAPE planners were not developing a Maginot Line mentality, but were instead inculcating the headquarters with a highly mobile offensive spirit.[81] However, although there would be strong manoeuvre elements to the defensive battle, attrition of enemy forces was still a fundamental aim of operations: a logical rationale since this would allow the Western allies to exploit the firepower of nuclear weapons to exact heavy losses on the Red Army and circumvent its advantage in superior numbers of troops. In the unique conditions created by the proliferation of tactical nuclear weapons, nuclear firepower would become *the* dominant factor on the battlefield. Whereas in conventional warfare, artillery and tactical air forces supported the troops, in tactical nuclear warfare the reverse was true and ground forces would become subservient to the nuclear armed air and ground units. As General Gruenther explained during multilateral discussions on defence planning, the West was now moving away from the concept of the mass army and strategy now centred around atomic power with the result that 'the forces now supported the weapon, rather than the old concept of the weapon supporting the forces'.[82]

Therefore, conventional ground forces still performed an important, albeit modified, function and assumed the traditional role that conventional ground forces always had. A memorandum by the Standing Group articulated this notion arguing that:

> All military experience through the ages and including the most recent fighting in the world, clearly demonstrates that forces are required on the surface of the land and the surface of the seas to prevent the overrunning of these areas by aggressors who are equipped with land and sea forces.[83]

[80] SHAPE History: The New Approach, 1953-1956, p. 368.
[81] TNA, PREM 11/771, General Gruenther's Remarks at SHAPE Correspondents' Luncheon, 11 January 1954.
[82] NATO, AC/100-R/3, Defence Planning – Multilateral Discussions, 23 February 1956, p. 5.
[83] NATO, SGM/912/55, Requirement for Conventional Forces, 22 December 1955.

Ultimately, the simple fact was that a certain level of conventional forces would be necessary to prevent the Soviet Union from achieving a quick and cheap military *fait accompli* in Central Europe. In addition, there was a secondary role for the conventional forces based along the intra-German border. The French Permanent Representative to the North Atlantic Council succinctly described this as being something akin to a 'trip-wire' that would indicate to the Soviet Union that any aggression in Europe would trigger an all-out nuclear war. This would be reinforced further by the existence of United States, United Kingdom, and Canadian divisions in the 'shield' force, making it clear that any attack would involve all the forces of the alliance in war.[84]

However, these shield forces were not merely a 'plate-glass' that would shatter at first contact with the enemy. As a memorandum by NATO's Standing Group Liaison Officer describes:

> It is not a static shield – it is a defence in time and space. For though it be dented and bent, it must hold until the atomic counteroffensive, which would be launched at the first alarm, has so damaged the invading forces, their avenues of approach, and their reserves of men and materials, that the attack will be brought to a halt. Having stopped the enemy and regained the initiative, the forces of the 'shield', profiting from the damaging blows inflicted by our air counteroffensive, will then eliminate any limited foothold he may have gained within NATO's borders.[85]

Thus, the role of the shield forces in this air/land battle was to trade space for time in a delaying action before regaining the initiative and launching a counteroffensive. The Military Committee's planning paper, MC 14/2, articulated the need for shield forces to work towards 'generating appropriate targets for Allied nuclear weapons, exploiting terrain to create situations which will inflict maximum attrition on the enemy and halting his attack'.[86] The analogy of conventional and nuclear forces working together in the fighting style of a Roman *murmillo* gladiator, reflecting a sudden blow with the conventional shield before parrying with

[84] NATO, CM(56)121, Defence Planning – The Reappraisal, 22 October 1956, p. 6.
[85] NATO, RDC/328/56, Statement on the Need for 'Shield' Forces, 28 July 1956.
[86] NATO, MC 14/2 (Revised) (Final Decision), Overall Strategic Concept for the Defense of the North Atlantic Treaty Organization Area, 23 May 1957.

the nuclear sword, shrouds the true meaning of their relationship. Rather, they were designed to operate much more like the lightly armed net-fighter *retiarius*, ensnaring the attacker in the conventional net whilst inflicting tactical strikes against the entangled foe with the nuclear-tipped trident.

This posture can be exemplified on a smaller tactical scale by the plans of General Sir Harold Pyman, the General Officer Commanding 1 (British) Corps between 1956 and 1958. Pyman planned to delay a Soviet advance by deploying his infantry brigade groups adjacent to likely crossing points across the River Weser, whilst keeping his two armoured brigades in reserve for the counterattack. Since 1 (British) Corps would be required to defend large expanses of ground Pyman instructed his officers never to attempt to hold it physically everywhere, but to 'dominate' the ground through a combination of strongly held areas, stop-lines, and reserve formations all so positioned as to give great depth.[87] However, as per the NORTHAG policy for defensive operations, the intention would be not to prevent the enemy from crossing the river, but to force the attacker to concentrate so it could be decimated by nuclear fires.[88] Pyman believed that 'the power of the infantry brigade group, supporting the corps atomic artillery will be immense'.[89] Note that the infantry would support the weapon, and not the reverse, as had been traditional practice during conventional warfare. Indeed, when the opposing sides made contact, 1 (British) Corps would rely on the tactical application of nuclear weapons to annihilate the enemy and bring the attack to a halt, as Pyman illustrates:

> Every time the enemy makes to cross the River Weser I shall break up his concentration on either side of the river with atomic artillery and I shall attack with my infantry brigade groups any of his elements which cross the river… should the enemy obtain a major concentration west of the River Weser, I shall screen it until such time as it presents me with an opportunity to destroy it with atomic artillery, or possibly air atomic support supported by one or both of my armoured brigade groups operating on ground of my own choosing.[90]

[87] LHCMA, Pyman Papers, PYMAN 11, 1 (British) Corps Training Directive, 29 October 1956.
[88] LHCMA, Pyman Papers, PYMAN 11, Directive on the Tactical Handling of Armoured Car Regiments, 3 October 1957.
[89] LHCMA, Pyman Papers, PYMAN 11, 1 (British) Corps Training Directive, 12 November 1957.
[90] LHCMA, Pyman Papers, PYMAN 17/6, 1 (British) Corps Plan, n.d. [c. 1956-1958].

If BAOR was going to rely so heavily on nuclear firepower to thwart a Soviet attack, it needed the weapon systems to do it. In 1955, the War Office invited the Defence Policy Research Committee to initiate a detailed assessment on the possibility of developing tactical nuclear weapons for the Army. The paper was a reaction to the possibility that nuclear weapons might be employed in a future land war. The War Office identified, in line with current thinking within the Army (see Chapter V), that the probable effects of nuclear weapons on the land battle would enforce a higher degree of tactical mobility on the Army, make concentrations of troops and material increasingly vulnerable, and elevate the significance of tactical (nuclear) airpower. For these reasons, the War Office saw in tactical nuclear weapons a panacea to solving these dilemmas, stating that 'the prospect of the development of small atomic weapons opens up new lines of approach with immense possibilities'. In a curious juxtaposition, the practical benefits arising from the possession of tactical nuclear weapons could help to circumvent the effects of the introduction of those weapons to the battlefield. For example, the War Office urged that if a long range gun could be developed that could deliver a nuclear warhead it could fulfil the role required of whole conventional batteries, thus reducing considerably the logistical loads that were constraining the movement of the Army on the ground. Likewise, if anti-tank and anti-aircraft conventional weapons could be replaced with nuclear-capable systems, this would serve to reduce further the administrative tail of the Army, allowing higher levels of tactical mobility.[91]

The Army also saw tactical nuclear weapons as combat force multipliers that could help offset the services deficiency in manpower in relation to the ground forces of the Soviet Union. In June 1955, the Deputy Chief of the Imperial General Staff (DCIGS) submitted a paper to

[91] TNA, WO 32/17069, DRP/P(55), Provision of Small Tactical Atomic Weapons and the Necessary Fissile Material to Fill Them, n.d. [approx. June 1955].

the Defence Policy Research Committee outlining the Army's requirements for tactical nuclear weapons. Since it was expected that the Soviet Union would enjoy numerical superiority in a future war, the DCIGS argued that 'on land the NATO forces must be equipped with a family of tactical atomic weapons to provide support at most ranges'. Ultimately, the DCIGS believed that 'the introduction of such weapons will entirely revolutionise the striking power of a field force and redress the balance of superiority of the Russians over the NATO forces'.[92] Therefore, in 1955, the Army's requirements for tactical nuclear weapons were: mobile heavy artillery with a range of up to 50,000 yards and guided missiles with greater ranges for long-range support; mobile medium artillery ranging to 25,000 yards for support in depth and the counter-bombardment of guns and mortars.[93] In addition, the Engineer-in-Chief expressed an interest in the development of atomic demolition munitions. He believed that such armaments would be more effective than their high-explosive counterparts in demolishing large structures such as bridges, saving both time and manpower – of which BAOR would be in dire need in a future war.[94]

However, for political reasons the priority in Britain was in developing an independent strategic nuclear deterrent so that during the 1950s BAOR had to rely on the use of American tactical nuclear weapons since it did not possess its own. The General Staff hoped that by the middle 1960s the Army would possess its own family of nuclear weapons. The two most important of these weapon systems were a nuclear gun, to provide close support to battle groups, and a 30-mile surface-to-surface guided weapon, to provide long-range firepower for the corps commander. The Army also identified the requirement for a missile with a range of up to 180 miles to target enemy missile sites, troop assembly areas, and centres of command, control, and communications. The research and development cost of the programme was

[92] TNA, WO 32/17069, DRP(AES)/P/55, Tactical Atomic Weapons for the Army, June 1955.
[93] TNA, WO 32/17069, Army Requirement for Small Atomic Weapons, June 1955.
[94] TNA, WO 32/17069, BM/814/17, Nuclear Demolition Charges, 27 June 1955.

estimated at £80m.[95] This was deemed too costly for the Minister of Defence, who decided in October 1957 that Britain would focus on the development of just one tactical nuclear weapon for the Army – an atomic shell which would be interchangeable with a high explosive shell in a medium gun. If the research and development programme was limited to this one project, the cost would be reduced to around £5m over five years.[96]

Officers in both SHAPE and BAOR planned to fight a mobile battle on the European Central Front which was reminiscent of a manoeuvrist school of war-fighting, although tactical nuclear weapons would be employed to exact heavy attrition on Soviet forces. NATO's shield forces were not simply a plate glass that would break at first contact with the enemy. Rather, they would trade space for time by absorbing a Soviet thrust whilst subjecting it to atomic strikes. In part this posture reflected the scarcity of land forces available to commanders. As BAOR commanders were aware, they simply did not have the number of conventional divisions to hold their ground and confront the Red Army head-on, so a mobile defence in depth had to be constructed. Although this would mean ceding large portions of Germany to the enemy, it was hoped that enough time would have been bought to allow the Allied bomber forces to ply their deadly trade with decisive results.

Conclusion

Since the formation of the NATO alliance the Atlantic powers wrestled with the challenges of raising sufficient land forces to defend the West from Soviet aggression. National and alliance military planners soon realised that it would be hopeless to attempt to attain conventional parity with the Soviet Union, and force multipliers were sought to counterbalance Soviet manpower superiority. Qualitative advantages in soldiers and equipment provided one source of relief for

[95] TNA, DEFE 7/1682, Nuclear Army Weapons, 21 October 1957.
[96] TNA, WO 32/17182, Nuclear Army Weapons, October 3 1957.

the alliance, but ultimately it was the emergence of small yield nuclear weapons that appeared to offer to the West a distinct military edge over their rivals in the land battle on the Central Front. Thus, the first use of tactical nuclear weapons to inflict devastating attrition on the Red Army should it roll across the intra-German border became fundamental to the operational concepts that guided SACEUR's shield forces. Therefore, BAOR and its sister formations in NORTHAG had little choice but to accept a nuclear posture.

It was clear that fighting with tactical nuclear weapons would require a radical reappraisal of the traditional principles that underpinned conventional war-fighting operations. SHAPE planners possessed a vague idea of how a future nuclear land war might progress and the types of forces that would be necessary, and BAOR commanders had begun to think about how they might control their forces on a battlefield dominated by nuclear firepower. Yet, with a lack of precedent on which to base operational planning for tactical nuclear war, there still remained many imponderables. The final section of this thesis examines how the British Army approached the conceptual challenges of planning for tactical nuclear war and the effect that this had on service doctrine and forces organisations.

Section Three

The British Army and the Nuclear Battlefield

Chapter V

Theories of Tactical Nuclear War

In a 1948 treatise on the patterns of wars throughout history, Lieutenant General Francis S. Tuker argued that with adequate foresight, imagination, and through a thorough study of the 'military science', it would be possible for soldiers to forecast the nature of the next war. This would require on the part of the military organisation intellectual progressivism in peacetime; only then would it be able to envision what a future war would look like and the types of forces that would be required to fight it and prevail. Tuker attached great importance to the role of service journals in providing a platform for officers to disseminate new ideas and concepts, and to discuss the changing character of warfare. Importantly, 'they must be prepared to take a line not necessarily in favour with those of us who are at the top of the fighting forces'.[1] Against the backdrop of the uncertain and rapidly changing military environment of the post-war years, this was a clarion call for the younger, more enlightened and educated officers to step forward and become the authors, both figuratively and literally, of the Army's future: 'the 'Yes-man' is more dangerous when he is the editor of a service periodical than when he is a subordinate in the army itself…it is only by rubbing our wits up against the wits of others who hold varying views that we can sharpen them'.[2] With the revolutionary developments in the field of nuclear energy, this warning against academic complacency in peacetime appeared to be all the more important than hitherto.

Tuker might have been pleased with the types of articles that eventually did appear in the major service journals throughout the second half of the 1940s and the 1950s. Between the years 1946-1957, the seven most popular journals concerning Army matters – *The RUSI Journal*, *The RUSI Journal India*, *Army Quarterly*, *British Army Review*, *Journal of the Royal*

[1] Francis S. Tuker, *The Pattern of War* (London: Butler and Tanner, 1948), p. 6.
[2] Ibid., pp. 6-7.

Artillery, *Royal Engineers Journal*, and the *Royal Armoured Corps Journal* – published between them 94 articles that related to atomic land combat.[3] Interest in thinking about the atomic battlefield rose steadily during the late 1940s, peaking in the middle 1950s with 30 articles being published on the tactical application of nuclear weapons in 1955 alone. The articles were written by officers of all ranks, representing each of the major service branches, and covered all aspects of the Army and nuclear weapons. As Tuker had hoped, articles that were published on atomic land combat during this period stimulated debate within the officer corps and raised a number of important questions about the Army's future and its roles and responsibilities at the dawn of the atomic era.

The authors that took the time to write and publish such articles were committed to the conceptual challenges of planning for the next war and identified the need to theorise about the changing character of land warfare and the areas in which the Army would need to innovate in order to remain operationally effective. In this context they can rightly be regarded as being military intellectuals, that is, 'a *thinking*, serving soldier, interested in ideas and fully imbued with the ethos of the profession of arms'.[4] Although many of these military intellectuals were not as prolific writers or publishers on the same level as some of their more active contemporaries such as Major General J. F. C. Fuller or Sir Basil Liddell Hart, they did, nonetheless, make important contributions to the body of knowledge that together constituted the emerging theory of tactical nuclear warfare in Britain. Free from the economic and political constraints that characterised the formulation of defence policy on the higher planes, as has

[3] This is to mean all articles that considered explicitly the impact that the tactical application of nuclear weapons might have upon the future conduct of land warfare and on Army doctrine, tactics, organisations, and equipment programmes. Also included in the survey are those articles that had been reproduced from foreign service journals. Omitted from the survey are articles that related to the strategic use of nuclear weapons, nuclear weapon testing, and the science of nuclear energy.

[4] Brian Holden Reid, *Studies in British Military Thought: Debates with Fuller and Liddell Hart* (Lincoln, NE: University of Nebraska Press, 1998), p. 3.

been shown in the first section, these military intellectuals could allow their imaginations to focus on the purely military dimensions of tactical nuclear weapon employment.

This chapter examines the evolution of Army thinking about the future atomic battlefield as enunciated by serving officers within the pages of the service journals outlined above. It argues that although the intellectual reference points for thinking about the atomic battlefield were rooted firmly in the historical experience, officers proved to be receptive to change and displayed a remarkable degree of foresight and critical thinking when developing theories for tactical nuclear warfare. It also shows how theories of tactical nuclear warfare were informed by, and contributed to, the wider intellectual debates within the Army during this period. The first section examines some of the earliest writings about the tactical application of nuclear weapons. It assesses how officers conceptualised the advent of the atomic bomb and the possibility that it might be employed in a future ground war. The second section analyses how the evolution of the theory of tactical nuclear warfare matured during the 1950s. It posits that the unique properties of nuclear weapons encouraged the officer corps to think in terms of greater battlefield mobility and flexibility. The final section evaluates how military publicists envisioned the progress of the land battle under nuclear conditions and the role played by the 'principles of war' in this assessment.

Early Thinking about the Tactical Application of Nuclear Weapons

There were only five articles published in Army service journals during the late 1940s that considered the impact that atomic weapons might have on the future conduct of land warfare. For many officers, the arrival of the atomic bomb did not appear to be of immediate professional concern. The bombings of Hiroshima and Nagasaki were viewed, understandably, as being merely an extension of the Allied strategic bombing campaigns that had devastated the Axis powers during the course of the Second World War; because of the immense

destructive power of those weapons and their relatively expensive production costs, a popular view, therefore, was that atomic bombs would only be used against the most important of strategic targets. Various studies conducted by the American military immediately after the end of the Second World War also suggested that the future battlefield would probably be non-atomic, much for the same reasons.[5] Furthermore, in Britain, technical information on the atomic bomb was simply not available to Army planners in the immediate post-war years, and this made it difficult to assess with any accuracy how the bomb might affect future land campaigns.[6] For those reasons, many articles that appeared in the immediate post-war years took two extremes and either played down the impact that nuclear weapons would have on future land warfare or else painted an apocalyptic picture of a future war involving the use of nuclear weapons.

Those officers who maintained that the advent of the atomic bomb did not require a radical revision of military thought wrote articles that were polemic in tone, defending the claim that the atomic bomb had made conventional land armies obsolete: 'the popular outcry that the atomic bomb has made everything else useless is a dangerous disease', wrote one officer in the *Journal of the Royal Artillery*, 'although we cannot completely disregard 'the realms of fancy' we must base our decisions on what we know and not on prophecy'.[7] In the same issue, a Lieutenant Colonel of the Royal Artillery believed that 'the saner view', to the suggestion that conventional army weapons were now outdated, 'seems to be that for many years the atomic bomb will remain an accessory and not a substitute'.[8] Other authors argued that a particular

[5] See, Robert A. Doughty, *The Evolution of U.S. Army Tactical Doctrine, 1946-76* (Kansas, MO: Combat Studies Institute, 1979), p. 2.
[6] This was not restricted to the military profession, however. The first page of British physicist P. M. S. Blackett's poignant 1948 study on nuclear energy warned that: 'It is always difficult to foresee the effect of an important new weapon on the art and practice of war… [and] especially difficult to foresee quantitatively the effects of atomic bombs, because of their technically revolutionary character'. P. M. S. Blackett, *Military and Political Consequences of Atomic Energy* (London: Turnstile Press, 1948), p. 1.
[7] R. C. Reynolds, 'The Future of Anti-Aircraft', *Journal of the Royal Artillery*, Vol. 73, No. 2 (April 1946), p. 99.
[8] S. M. Cleeve, 'Super-Heavy Artillery: The Problem in 1945', *Journal of the Royal Artillery*, Vol. 73, No. 2 (April 1946), p. 133.

branch or service specialism would remain largely unchanged in spite of atomic weapons and would continue to play an important role in future land warfare. In an article on the future of armoured forces, a Captain of the Royal Armoured Corps maintained that while atomic bombs would be a great threat to army bases and centres of industry, it would be wasted on the actual battlefield. Therefore, tanks and armoured divisions would remain important features of land armies in the years to come.[9]

A corollary of this view was that for the foreseeable future Army tactics, doctrine, and organisations would remain largely unchanged. This might well change in the future if the destructive power of nuclear energy could be tamed, warned the editor of the *Royal Armoured Corps Journal*; if it did, the present conception of Army organisation would become 'obsolete overnight'.[10] For the meantime, however, it appeared that nuclear weapons were too powerful and expensive to be squandered on the battlefield and that the next war would begin on the same lines as the closing stages of the Second World War.[11] After all, outlined one observer in a private memorandum to Sir Basil Liddell Hart, the nominal 20kt atomic bomb would be wasted against small battlefield targets, resulting in misplaced energy comparable to 'shooting at flies with cannon'.[12] Other writers took a similar view with one officer arguing that in its present form the atomic bomb could not be employed tactically since:

> The area of destruction is far too great besides the fact that there is a distinct possibility of the destroyed area remaining radio-active for a long time. No military commander dare risk taking his troops and equipment through such an area immediately after it has been subjected to atom bomb action, and expose them to the fatal effects of radio-activity.[13]

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[9] R. J. Sutherland, 'The Future of the Armoured Division', *Army Quarterly*, Vol. 53, No. 1 (October 1946), p. 92.
[10] Editorial, 'Nuclear Fission', *Royal Armoured Corps Journal*, Vol. 1, No. 1 (July 1946), p. 8.
[11] See, for example, A. J. Wilson, 'The Future of Armour as the Arm of Mobility', *The RUSI Journal*, Vol. 91, No. 563 (1946), p. 396; M. E. Dennis, 'To-Day and To-Morrow', *Journal of the Royal Artillery*, Vol. 74, No. 1 (January 1947), p. 13; R. C. Hulbert, 'Silver Medal Essay 1946/47', *Journal of the Royal Artillery*, Vol. 74, No. 4 (October 1947), p. 374.
[12] LHCMA, Liddell Hart Papers, LH/15/5/443, The Description of an Imaginary Battle by Lieut.-Col. F. O. Miksche, unpublished typescript, n.d. [approx. 1948].
[13] C. L. Borve, 'Is There a Defence Against the Atom Bomb?', *The RUSI Journal India*, Vol. 80, Nos. 338-339 (Jan-April 1950), p. 76.

Such considerations reinforced the view that Army officers need not worry about the impact that atomic weapons might have upon the profession of arms. The winner of the Bertrand Stewart Prize Essay for 1948 concluded his piece with a comforting message for those 'depressed Service officers' who might be worried that the Army had been rendered obsolete by atomic weapons. He reminded his fellow soldiers that 'these weapons of mass destruction scarcely touch the fringe of tactics; the consideration of their effect can be left to the 'Q Planners', to the organizers of large-scale convoys, and to the commanders of major battle fleets at sea. The regimental soldier…can turn his attention back to conventional battle tactics'.[14]

Despite the resistance by some sections of the officer corps to acknowledge the impact that nuclear energy might have upon the conduct of future land warfare, the destructive power of the atomic bomb could not be ignored completely. Although detailed information on the technical characteristics of the atomic bomb was sparse, there was a growing realisation among the early atomic prophets that conventional troop concentrations would become uniquely vulnerable to the immense blast, heat, and radiation kill mechanisms of nuclear weapons: 'No commander will in future be able to gather large forces for any sort of mass attack', began one 1949 article in the *British Army Journal*, 'without having to consider the possibility of atomic bomb attack ruining the bulk of his dispositions and plans'.[15] It was thought that the threat of atomic attack would prevent force concentrations both in the forward areas and along the lines of communications in a theatre of operations.[16] Therefore, the traditional conception of the land

[14] B. H. D. Barnes, 'Bertrand Stewart Prize Essay, 1948', *Army Quarterly*, Vol. 57, No. 2 (January 1949), p. 177. A few writers continued to argue throughout the whole period under review that nuclear weapons would not be used against troops in the field because of their financial cost, availability, or due to political constraints. See, for example, Editorial, 'The British Atomic Explosion and the New Warfare', *Army Quarterly*, Vol. 65, No. 2 (January 1953), pp. 130-131; C. N. Barclay, 'The Future of the Tank, Part I', *Army Quarterly*, Vol. 67, No. 1 (October 1953), pp. 45-46; W. G. A. Lawrie, 'The Years Between', *Royal Engineers Journal*, Vol. 69, No. 3 (September 1955), p. 219.

[15] Anon, 'The Atomic Bomb: What Every Officer Should Know', *British Army Journal*, No. 1 (January 1949), p. 12.

[16] H. L. G. Burlton, 'Gold Medal Essay 1946/47', *Journal of the Royal Artillery*, Vol. 74, No. 3 (July 1947), p. 241.

offensive, employing a mass of armour and infantry supported by a panoply of supporting units, must, claimed one author 'be considered as dead as the proverbial door nail' because such forces would invite wholesale destruction by a well-placed atomic strike.[17] This suggested an end to concentration of force and massed attack[18] and might place greater emphasis on tactical mobility.[19]

Thinking about the impact that increases in the lethality of firepower would have on the battlefield was not unique to the atomic theorists, however, but has taxed the imaginations of military intellectuals throughout history.[20] Stripped to its bare essentials, the basic aim in combat is 'to hit and not be hit'. To facilitate this, the art of war had evolved to include three essential elements: *firepower* to hit, *protection* to avoid being hit, and *mobility* to help deliver firepower and to avoid enemy blows.[21] Therefore, military tactics are essentially a combination of fire and manoeuvre. Both fire and manoeuvre are constant, tangible factors, and it is the relationship between the two that shapes the tactical environment on the battlefield. It follows that as technology advances new weapons produce new forms of fighting and new forms of attack and defence. Fuller famously described this phenomenon as the 'constant tactical factor' in warfare: every improvement in weapon-power is eventually cancelled out by a counter-improvement, rendering the improvement obsolete. He conceptualised this as an evolutionary

[17] Crystal-Gazer, 'Looking Ahead', *Royal Engineers Journal*, Vol. 65, No. 4 (December 1951), pp. 364-366.
[18] One Army Major came to the conclusion that this type of ground war would have more in common with guerrilla warfare than a traditional land battle. E. N. Ford, 'The Platoon Commander Training for War', *Army Quarterly*, Vol. 63, No. 1 (October 1951), p. 106.
[19] See, for example, Hoffman Nickerson, 'Atomic Military Theory: Some Reflections on Pre- and Post-Atomic Military Theory', *Journal of the Royal Artillery*, Vol. 73, No. 3 (July 1946), p. 221.
[20] For example, Antoine-Henry Jomini wrote in 1836 that 'the means of destruction are approaching perfection with frightful rapidity'. With the advent of the Congreve rocket and improvements in artillery, Jomini wondered whether infantrymen would again have to adopt armour as in the Middle Ages. Antoine-Henri Jomini, *Summery of the Art of War*, trans. G. H. Mendell and W. P. Craighill (Philadelphia, PA: J. B. Lippincott & Co., 1862), p. 48. Perhaps the most perturbing vision of the impact that greater firepower would have on a future war came from the Polish banker I. S. Bloch in his famous work of 1897. Bloch believed that the momentous increase in the killing power of modern weapons would only lead to stalemate in war since there would be 'increased slaughter on so terrible a scale as to render it impossible to get troops to push the battle to a decisive issue'. I. S. Bloch, *Is War Now Impossible?* (London: Grant Richards, 1899), p. xvi.
[21] P. A. J. Cordingly, 'Armoured Forces and the Counter Stroke' in J. J. G. Mackenzie and Brian Holden Reid (Eds), *The British Army and the Operational Level of War* (Camberley: Tri-Service Press, 1989), p. 95.

pendulum in weapon-power that swings from offence to defence in harmony with the speed of technological progress.[22] At times, the swing of the evolutionary pendulum might be such that one or two of the three elements of combat – firepower, protection, or mobility – appears to predominate over the other. Fuller argued that, historically, when the three elements were balanced equally, tactics flourished, but when that balance became too heavily weighted in favour of one element over the others, 'the art of war has either stood still or retrogressed'.[23]

Thus, since the atomic bomb represented mankind's absolute mastery of firepower, the tactical pendulum appeared to have swung decisively in favour of firepower over mobility. An American Army officer even suggested that the swing of the pendulum alternated with each major conflict, highlighting that during the First World War firepower defeated manoeuvre, whilst the reverse was true in the opening campaigns of the Second World War.[24] This suggested, then, that if atomic weapons were employed tactically in a future ground war, then firepower would dominate the battlefield since armies would not be able to protect themselves through the traditional means of digging-in, building entrenchments, and constructing field fortifications, nor would they possess the necessary mobility to be able to circumvent the effects of an atomic explosion. The Czechoslovak army officer Lieutenant Colonel F. O. Miksche illustrated this problem vividly in his 1955 study of modern armies: 'As a result of the invention of atomic weapons, fire-power increased a thousand-fold. At the same time, the means of movement on the ground remain unchanged – lorries and tanks are used as in the last war'.[25] To solve the problem of the imbalance between the three elements of combat, British

[22] J. F. C. Fuller, *The Dragon's Teeth* (London: Constable & Co. Ltd., 1932), p. 213.
[23] J. F. C. Fuller, *The Foundations of the Science of War* (London: Hutchinson & Co., 1926), p. 153. In a similar vein, Lieutenant General Martel wrote that if mobile warfare 'is carried out with success by one side, then great victories are achieved and a short and successful war results. If this mobile warfare does not lead to success, then a long drawn out war usually results'. IWM, Private Papers of Lieutenant General Sir Giffard Martel, GQM 6/3c, Why All This Muddle, unpublished typescript, n.d. [approx. 1950].
[24] Clarence DeReus, 'Through the Atomic Looking Glass', *Military Review*, Vol. 35, No. 3 (June 1955), p. 11. See, for a similar argument, George B. Pickett, 'Squeeze 'Em An' Blast 'Em', *Military Review*, Vol. 35, No. 6 (September 1955), pp. 56-57.
[25] F. O. Miksche, *Atomic Weapons and Armies* (London: Faber and Faber Ltd., 1955), p. 17.

Army officers advanced extreme solutions in an attempt to restore the harmony between firepower, protection, and mobility. Consequently, the late 1940s and 1950s witnessed the emergence of theories of war that advocated styles of warfare that fell on extreme ends of the tactical spectrum, with either mobility or protection being taken to their logical upper-limits.

One of the first writers to offer a solution to the problem of fighting on an atomic battlefield was Colonel A. Jolly whose article, 'Armour and the Next War', appeared in the *Royal Armoured Corps Journal* in July 1946. This article advocated a style of manoeuvre warfare *par excellence*. Jolly wrote that in a future war involving the use of atomic weapons, assembly areas, congested bridgeheads, headquarters, ports, and any bottlenecks that might see large troop concentrations, such as focal points in road communications, would become vulnerable to atomic attack. Therefore, if ground forces were to operate effectively on an atomic battlefield they would most likely require the following characteristics: embarkation areas and overseas bases dispersed over wide stretches of coastline; amphibious assaulting armour; armoured protection for all personnel; cross-country mobility; and the ability to traverse water obstacles without the need for heavy bridging equipment. The article concluded by stating that the ideal land force for atomic warfare would be highly mobile, fully-armoured, self-contained, and capable of maintaining independent combat operations as far as possible from conventional supply lines.[26] Jolly likened this type of highly mobile army as having more in common with a naval fleet than a traditional ground force. The editor of the *Royal Armoured Corps Journal* highlighted that this would come naturally to tankers since speed, elasticity and concealment were the ideals tactically, as they always had been, only 'the bomb would make their attainment more urgent'.[27] The analogy to fluid and highly mobile operations that was reminiscent of naval warfare was nothing new, however. In November 1916, one of the pioneers of armoured

[26] A. Jolly, 'Armour and the Next War', *Royal Armoured Corps Journal*, Vol. 1, No. 1 (July 1946), pp. 52-59.
[27] Editorial, 'Atomic Broadcasts', *Royal Armoured Corps Journal*, Vol. 1, No. 4 (April 1947), pp. 235-236.

warfare in Britain, General G. Le Q. Martel, wrote a paper entitled 'A Tank Army' in which he outlined for the first time the concept of tanks operating like a fleet at sea.[28]

At the same time, however, other military theorists were offering competing visions of future war that not only emphasised protection over mobility, but warned against any kind of open movement on the battlefield. One of the first writers of this ilk was Lieutenant General F. S. Tuker whose article, 'Nuclear Energy and War', appeared in *The RUSI Journal India* just six months after the atomic bombings of Hiroshima and Nagasaki. Tuker's portrayal of future nuclear war was apocalyptic and reads at times more like a science fiction novel rather than a practical exposition of possible future trends in warfare. Tuker wrote that when a belligerent achieved the capabilities to be able to launch a surprise strategic attack using nuclear-tipped long-range rockets, 'the only safe place tomorrow is below the surface of the world'.[29] Tuker envisioned whole populations living in deep catacombs under the ground and under the sea within which all means of human sustenance would be provided for. These 'Underneath's' would become an organic part of a wider self-sufficient fortress system which, in times of war would provide defensive bastions akin to the stone clad Medieval castles of old. From these fortresses, Tuker imagined, would be launched nuclear rockets and missiles, the sole aim of which was to smash the opposing sides nuclear power potential by destroying its nuclear industries and means of production. If, at some point it became necessary to send assault troops into the underground labyrinths of the opposition's fortress system to force an end to the nuclear exchange, then airborne forces would have to be relied on since the surface of the earth would be nothing but a radioactive no-man's-land. In such a dystopian vision of future warfare Tuker maintained that 'land armies as we know them to-day will be out of date'.[30]

[28] R. M. P. Carver, *The Apostles of Mobility: The Theory and Practice of Armoured Warfare* (London: Weidenfeld and Nicolson, 1979), pp. 22-23.
[29] F. S. Tuker, 'Nuclear Energy and War', *The RUSI Journal India*, Vol. 76, No. 322 (January 1946), p. 68.
[30] Ibid., p. 75.

Of course, this was a fantastical account of what a future nuclear war would look like and was completely detached from the realities of rational defence policy-making. Considering Tuker's dedication to stimulating debate and imagination within the officer corps, 'Nuclear Energy and War' was more than likely a means of stimulating professional discussion within the Army than an actual blueprint for future planning. However, Tuker's suggestion for the need in nuclear war of well-protected static defensive positions coupled with highly mobile airborne counter-attack units was one which other military thinkers acknowledged also. In a 1949 article in the *Army Quarterly* examining the defensive aspects of atomic land combat, the author argued that ground forces would still require secure bases, as they always had, and that these could best be provided by 'base fortresses' not unlike the ones advocated by Tuker, albeit on a smaller tactical scale. These would be self-sufficient defensive positions capable of defending a specific locality for an indefinite period of time. In this concept, the aim of the attacker or defender would be to lure the opposition away from its secure defensive sanctuaries and into pre-designated atomic 'killing-grounds' where it would be subjected to nuclear fires and counter-attacked by highly mobile strike forces.[31] The concept of mobile forces and static defensive positions mutually supporting one another was not a new concept, but was as old as war itself. What is revealing, however, is the reference to atomic 'killing-grounds' since this concept became a reoccurring theme in many theories of tactical nuclear warfare throughout the 1950s.

Articles of this type continued to appear into the early 1950s. The winner of the Bertrand Stewart Prize Essay for 1950 wrote that a future war would most likely stagnate into a positional affair with high rates of attrition since tactical atomic weapons, improvements in anti-tank guns, and greater precision of artillery would favour the defence against ground

[31] P. H. H. Bryan, 'Some Aspects of Defence in Atomic Warfare', *Army Quarterly*, Vol. 58, No. 1 (April 1949), pp. 49-55.

attack. Static defences would not be along the same lines as those of 1914-18, however, but would take the form of fortress positions from which mobile forces would operate resembling 'position warfare of the Middle Ages, as it was understood and practiced by Marlborough and Saxe'.[32] Borrowing ideas from Tuker's 'Nuclear Energy and War', the author, a Major in the Royal Engineers, envisioned the world's surface being divided into 'Heartlands' (where raw material and industrial centres would be contained), 'Defended Zones' (the outposts of defence of the Heartlands), and 'Battle Zones' (a radioactive wasteland interspersed with fortresses where the actual fighting would take place). What political goals such a war would achieve is unknown, not least because it would impose almost universal suffering upon the world's population. This prompted the author to ponder 'whether any potentate, fanatic even, let alone any democratic leader, would let loose such a dreadful holocaust upon the world'.[33]

In the early post-war years, then, certain assumptions had been made about the nature of a future land war. If nuclear weapons were employed in a tactical role on the battlefield, then this would require a radical change in military thought as revolutionary as the weapons that had brought it about. It became clear to military theorists that mass would suffer most under nuclear conditions, and this would need solving. What the intellectual reference points should be for thinking about this problem – extreme trench warfare with its deep and elaborate earthworks, or mobile high-tempo armoured operations – was still unknown. Whatever the correct picture of a future atomic land war, it would have a profound impact on the tactics, doctrine, and organisations of the British Army. It was these problems that occupied the minds of the atomic theorists throughout the 1950s.

[32] D. J. O. Fitzgerald, 'The Bertrand Stewart Prize Essay, 1950', *Army Quarterly*, Vol. 62, No. 1 (April 1951), p. 53.
[33] Ibid., p. 54.

The Quest for Mobility

By the early 1950s, the caution that had been shown towards nuclear power during the 1940s was swept away by a wave of activity in the nuclear field. As was shown in the previous chapter, NATO became committed to a nuclear defence of Western Europe in 1954 as dictated by the Military Committee's planning document M.C. 48, and in the same year Field Marshal Montgomery informed listeners during a much publicised lecture to the RUSI that all operational planning at SHAPE centred on the employment of nuclear weapons in the land battle.[34] Tactical nuclear weapons were also, for the first time, being deployed to the European Central Front in the form of the U.S. M65 280mm atomic cannon.[35] Hitherto, writers had referred to the tactical *application* of nuclear weapons; now the hardware was available, and 'tactical nuclear weapon' entered the lexicon of professional discourse. As will be explored in the following chapter, the British Army was also beginning to explore the potentialities of nuclear weapons in various war-games and military exercises. All of this quelled any doubts that tactical nuclear weapons would be used against ground troops in a future land war in Europe.[36] This was reflected in the service journals, with each subsequent issue offering at least one original study into the Army and the atomic battlefield.

During the middle 1950s, military publicists focused increasingly on the problem of the vulnerability of troop concentrations on the battlefield. Prophets of atomic warfare took as their reference points the great land campaigns of the Second World War and imagined how they would have progressed under atomic conditions. Common examples included: the allied

[34] B. L. Montgomery, 'A Look Through a Window at World War III', *The RUSI Journal*, Vol. 99, No. 596 (November 1954), p. 508.
[35] The 'Atomic Annie', as it was affectionately known, could project a 15kt nuclear shell up to a range of 18 miles. David C. Elliot, 'Project Vista and Nuclear Weapons in Europe', *International Security*, Vol. 11, No. 1 (Summer 1986), p. 173.
[36] For example, in July 1954 the editor of the *Royal Armoured Corps Journal* maintained that the use of tactical nuclear weapons would be a certainty in the next war while. In the same month, the editor of the *British Army Annual* urged that they must now be considered 'conventional weapons'. Editorial, 'Editorial Notes', *Royal Armoured Corps Journal*, Vol. 8, No. 3 (July 1954), p. 113; Editorial, 'Atomic Warfare', *British Army Annual*, No. 1 (July 1954), p. 6.

landings at Normandy in 1944, British concentrations during the 1942 battle of El Alamein, especially when armoured units were passing through the infantry formations, and the allied crossing of the Rhine in 1945.[37] Major General Sir Harold Pyman recorded his thoughts on these operations in 1953 when he was commander of 11th Armoured Division in Germany:

> These few examples – and there are many others – show that heavy concentrations of land forces, particularly Armour and Artillery, make favourable atomic targets. All of these battles are worth studying again against a background of possible atomic support, and a threat of possible atomic attack.[38]

It did not take much imagination, however, to envision the devastating effects that atomic weapons would have had on the large and cumbersome armies of Second World War vintage concentrated for attack or defence. Pyman informed listeners during a lecture at the Swiss Officers' Society in 1954 that whenever any threat of atomic bomb attack exists, force concentrations as were deemed necessary and acceptable during the last war would be 'foolhardy'.[39] Across the Atlantic, US Army officers had arrived at similar conclusions independently. For example, two articles typical of the period stated that 'if it is to escape from heavy casualties from tactical atomic weapons, the army must operate in a state of *great dispersion* both in defence and in the attack'[40] since 'greater dispersion makes troops less vulnerable to atomic attack by presenting to the enemy a less dense and hence less profitable target'.[41]

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[37] For example, L. O. Lyne, 'The Future of the Tank, Part II', *Army Quarterly*, Vol. 67, No. 2 (January 1954), p. 179; H. E. Pyman, 'Armour in the Land Battle', *Royal Armoured Corps Journal*, Vol. 8, No. 3 (July 1954), pp. 119-127; R. N. Gale, 'Infantry in Modern Battle: Its Organization and Training', *British Army Annual*, No. 1 (July 1954), p. 9.

[38] LHCMA, Pyman Papers, PYMAN 9/3, The Atomic Bomb as a Tactical Weapon on the Battlefield with Particular Reference to an Armoured Division, unpublished typescript, 15 October 1953.

[39] LHCMA, Pyman Papers, PYMAN 9/6, Armour – Lecture by Major General H. E. Pyman to Swiss Officers' Society, unpublished lecture notes, March 1954.

[40] L. H. Landon, 'What Type of Army?', *Military Review*, Vol. 36, No. 12 (March 1957), p. 101 [emphasis in original].

[41] Edward L. Rowny, 'Ground Tactics in an Atomic War', *The Army Combat Forces Journal* (August 1954), p. 19.

From this realisation stemmed further questions to which few answers could be found. The problem was that the concentration of force had, historically, been an important positive factor in war. This had been recognised by a number of military thinkers and was most popularly expounded by Carl von Clausewitz, who, in his *magnum opus* on the theory of war, attached great importance to the concentration of superior forces in time and space for the successful outcome of military operations.[42] Clausewitz's contemporary, Antoine-Henri Jomini, believed this to be *the* fundamental principle of war arguing that the primary aim of commanders at the strategic level was to throw the mass of an army upon the decisive point of a theatre of operations, and at the tactical level, against the most vulnerable point of the hostile enemy position.[43] The legacy of these writings meant that concentration, or mass, became one of the most highly valued principles of war for many military organisations, including that of Great Britain.[44] The principle of 'Concentration' became codified in official British military doctrine with the publication in 1920 of the *Field Service Regulations* and has remained there ever since.[45] Yet, if mass would suffer most on the atomic battlefield, then, as Pyman highlighted above, decisive concentrations of force would be difficult, perhaps impossible. This was recognised by contemporary officers as having serious implications for the military art that would most likely require a complete rethink of military tactics and techniques.

If mass would suffer most on the atomic battlefield then the implication was that the basic aim of all commanders would be 'to force their enemies to concentrate sufficient forces to

[42] Carl von Clausewitz, *On War*, Book III Chapter VIII, Michael Howard and Peter Paret (Eds. and trans.) (London, Toronto, and New York, NY: Everyman's Library, 1993), pp. 228-232.
[43] Jomini, *Summery of the Art of War*, p. 70.
[44] John I. Alger, *The Quest for Victory: The History of the Principles of War* (London and Westport, CT: Greenwood Press, 1982), p. 189.
[45] The eight principles of war listed in 1920 were: maintenance of the objective; offensive action; surprise; concentration; economy of force; security; mobility; and co-operation. War Office, *Field Service Regulations*, Vol. II, *Operations* (Provisional) (London: HMSO, 1920), pp. 14-15. Ninety years later the Army's capstone doctrinal manual reaffirmed the continued significance of 'concentration' as a principle of war. Ministry of Defence, *Army Doctrine Publication: Operations* (Shrivenham: Development, Concepts and Doctrine Centre, 2010), p. 2A-4.

constitute an atomic target, while at the same time not offering one themselves'.[46] Indeed, it appeared to military theorists that tactics had turned full circle since the Second World War, as one writer highlights: 'Whereas hitherto it was good tactics to prevent the enemy from concentrating his forces for attack or defence, now it will be our first aim to compel him to do so'.[47] Although this appeared both simple and straightforward, it did create a rather curious conundrum with regards to battlefield technique. The basic problem was one of forcing the enemy to concentrate while remaining sufficiently dispersed so as to not invite atomic attack.[48] This implied that armies would need to be able to switch between concentration and dispersion rapidly and with ease. By so doing, this would allow ground forces to concentrate in time but not in space, denying the enemy a suitable target for atomic attack. The phrase 'concentrate to fight, disperse to live' was extremely popular and became the watchword of atomic military theorists throughout the 1950s.[49]

Dispersion in itself was not a new phenomenon for atomic age military planners but had become, by the 1950s, a necessary battlefield technique in land warfare to circumvent the increased range, accuracy, and lethality of firepower. By the beginning of the twentieth century, the great strides that had been made in the effectiveness of battlefield firepower over the last hundred years had made combat a much more deadly pursuit, forcing armies to abandon the rigid close order formations of antiquity and seek ways to mitigate the effects of enemy firepower through the development of new techniques, organisations, and force employments.[50] Stephen Biddle calls these innovations 'the modern system' and posits that it was only through the employment of ground troops in a much more flexible manner that

[46] A. F. J. G. Jackson, 'Fighting Formations of the Future', *The RUSI Journal*, Vol. 100, No. 598 (1955), p. 231.
[47] Wilkinson, 'Tactical Atomic Support of Ground Forces', p. 130.
[48] G. G. R. Williams, 'Atomic Weapons and Army Training', *The RUSI Journal*, Vol. 99, No. 596 (1954), p. 572.
[49] Andrew Bacevich attributed this slogan to a U.S. Army officer who coined the maxim in a 1955 article for *Armor*. It is difficult to ascertain the British origins of this term and whether it was lifted from that article. See, A. J. Bacevich, *The Pentomic Era: The U.S. Army Between Korea and Vietnam* (Washington, DC: National Defense University Press, 1986), p. 68.
[50] See, Michael Howard, 'Men against Fire: The Doctrine of the Offensive in 1914' in Peter Paret (Ed.), *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Oxford: Oxford University Press, 1986), pp. 510-526.

emphasised cover, concealment, dispersion, small-unit independent manoeuvre, suppression, and combined arms integration, that armies were able to overcome the challenges of operating on a battlefield dominated by lethal and ubiquitous firepower.[51] Indeed, it was only through the 'modern system' of offence and defence that the stalemate and slaughter of trench warfare was finally overcome during the First World War. In the 1950s, military theorists looked towards the 'modern system' approach to war-fighting as a way in which meaningful combat operations could be conducted in a technological environment where powerful and long-range nuclear rockets and missiles suggested that 'battlefields may well become much larger and fixed fronts may give place to large areas of mobile fighting by small, fast columns'.[52]

If atomic age armies hoped to be able switch rapidly between concentration and dispersion then this would require high levels of tactical mobility. As Major General Pyman acknowledged grimly, 'no land forces will survive for long in future warfare, unless they are capable of considerable mobility. Protracted static defence will literally be lifted off the face of the earth'.[53] There was a growing realisation, then, amongst the military publicists that the Army needed to become much more flexible through increasing dramatically its means of mobility on the ground. Unsurprisingly, tankers were quick to seize the opportunity to promote their branch over other sections of the service. In a 1953 article in the *Royal Armoured Corps Journal*, the inter-war pioneer of mechanised warfare in Britain, Major General J. F. C. Fuller, argued that the tank would become much more important in a future ground war involving the tactical application of atomic weapons since it would 'enhance the value of mobility, because rapid dispersions and concentrations, such as can be effected with cross-country vehicles, will

[51] Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Oxford and Princeton, NJ: Princeton University Press, 2006), pp. 28-51.
[52] D. S. Clarke, 'The Bertrand Stewart Prize Essay, 1953', *Army Quarterly*, Vol. 67, No. 2 (January 1954), p. 163.
[53] LHCMA, Pyman Papers, PYMAN 10/1, The Armoured Division, 14 December 1955, unpublished typescript. Another officer noted that if a static position was worth holding, it would be worth destroying by atomic fires. See, 'Centaur', 'Some Thoughts on Nuclear War', *Royal Engineers Journal*, Vol. 69, No. 1 (March 1955), p. 85.

become doubly necessary'.[54] This was a view shared by another tank enthusiast, Major General Sir Harold Pyman, who informed listeners at a lecture to the Royal United Services Institute that 'armour supported by atomics and atomics exploited by armour present a new means of ensuring true mobility on the battlefield in both offensive and defensive operations'.[55] Tanks were also believed to provide good protection against the effects of nuclear weapons, particularly radiation.[56] This renewed interest in mobile operations that tactical nuclear weapons had helped to bring about would, claimed one French observer, finally lead to that 'over-all mechanization, which the protagonists of armoured forces have been dreaming about since 1916'.[57]

Calls for greater mobility by atomic military theorists did not occur in a vacuum, however, but developed in tandem with the wider debate during this period of how to foster greater mobility in the British Army more generally. The Second World War had witnessed the ascendancy of increasingly complex logistic systems to support frontline units, and champions of manoeuvre warfare lamented the way in which armoured divisions, in particular, had become anchored to their extremely cumbersome, road-bound, administrative tails, which had a tendency to restrict the mobility and flexibility that was so desired in mechanized formations.[58] It was predicted that these exposed life-lines would become the Achilles heel of

[54] J. F. C. Fuller, 'The Tank in Future Warfare', *Royal Armoured Corps Journal*, Vol. 7, No. 1 (January 1953), p. 40.
[55] Pyman, 'Armour in the Land Battle', p. 227. For similar arguments see, T. A. Gibson, 'A Plea for the BAT', *British Army Review*, No. 1 (September 1955), p. 32 and J. W. Hackett, 'Panzer Battles', *British Army Review*, No. 3 (September 1956), p. 35. A report by the Army League asked whether tactical nuclear weapons would 'spell the end of the heavy tank, just as gunpowder spelt the end of the knight in armour?'. One officer agreed with this proposition arguing that the slow moving heavy tank would become obsolete in nuclear war. *The Army in the Nuclear Age: Report by the Army League Sub-Committee* (London: St. Clements Press Ltd., 1955), p. 34; K. J. Mears, 'David or Goliath', *British Army Review*, No. 3 (September 1956), pp. 60-64.
[56] See, Editorial, 'The Atom Bomb', *Royal Armoured Corps Journal*, Vol. 1, No. 3 (January 1947), pp. 169-170 and G. L. D. Duckworth, 'Tank Crews in Atomic Warfare', *Royal Armoured Corps Journal*, Vol. 9, No. 2 (April 1955), pp. 73-75.
[57] André Beaufre, 'Reflections on the Evolution of the Doctrine of the Employment of Armour', *Royal Armoured Corps Journal*, Vol. 8, No. 4 (October 1954), p. 176.
[58] See, Giffard Martel, 'The Future of the Tank: Part III', *Army Quarterly*, Vol. 68, No. 1 (April 1954), p. 79; R. M. Ogorkiewicz, 'Armoured Formations – Past and Future', *Royal Armoured Corps Journal*, Vol. 10, No. 3 (July 1956), p. 100.

armies operating on the atomic battlefield. Of particular concern was the vulnerability of advancing columns to being spotted and attacked by modern airpower. This had been noted in the British Army as early as 1924 and proved to be a correct appreciation after the operational experiences of the Second World War had been digested.[59] In atomic land combat, congested supply lines would merely invite destruction by enemy atomic weapons. Therefore, theories of tactical nuclear war contributed to, and were informed by, the wider debate on organisational transformation in the Army. Of course, since the interwar period military intellectuals in Britain such as Fuller, Liddell Hart, and Martel had argued that the destructiveness of modern weapons would see the death of the mass land army of First World War vintage. In the atomic era, the attainment of the tactical ideals of mobility and flexibility would become even more urgent than they had in the 1920s.

Military publicists offered a number of solutions for fostering greater battlefield mobility. One was by streamlining the divisional structure. This in itself was not particularly innovative since many commentators were beginning to question the continued utility of the division as it had emerged after the end of the Second World War.[60] In 1952 the standard British infantry division consisted of three infantry brigades, each of which was composed of a headquarters (HQ) and three battalions. Altogether, this amounted to 18,800 men and 3,300 vehicles. The armoured division was organised in a similar manner, consisting of three armoured brigades, and totalling some 16,100 men and 3,500 vehicles. The organisation in 'threes' in both the infantry and armoured divisions was adopted on the basis that it would give the division greater

[59] David French, *Raising Churchill's Army: The British Army and the War Against Germany 1919-1945* (Oxford: Oxford University Press, 2001), p. 25. This was reflected in 'airpower' becoming added to the British principles of war canon in 1945 at Montgomery's insistence.

[60] For example, B. H. Liddell Hart, 'How to Quicken Manoeuvre and Gain Flexibility in Land Warfare', *Army Quarterly*, Vol. 60, No. 2 (July 1950), pp. 181-195; R. M. P. Carver, 'Tanks and Infantry: The Need for Speed', *The RUSI Journal*, Vol. 96, No. 3 (June 1953), pp. 452-456; W. N. R. Scotter, 'Streamlining the Infantry Division', *The RUSI Journal*, Vol. 98, No. 592 (1953), pp. 597-602; N. C. Baird, 'Economy of Infantry: Some Thoughts on Improving Flexibility', *The RUSI Journal*, Vol. 99, No. 595 (1954), pp. 439-442; R. M. Ogorkiewicz, 'The Organisation and Role of Armoured Formations', *Royal Armoured Corps Journal*, Vol. 11, No. 4 (October 1957), pp. 170-176.

flexibility on the field since commanders could commit two battalions to combat whilst holding one in reserve or, if greater depth was required, one battalion could fight at the front with two in reserve.[61] The experiences of the Second World War had shown that the triangular division – as it was known – proved to be effective during the attack, but became rather cumbersome during defensive operations.[62] Military theorists believed that this type of organisation would prove too inflexible to perform the type of operations envisaged for the atomic battlefield.

The major problem identified with the conventional division was that it required a glut of supporting units to keep it operationally effective in the field. For example, the large number of vehicles and heavy weapons organic to the armoured division meant that although a good initial supply of war material and firepower could be carried into battle with it, subsequent maintenance requirements became extremely heavy.[63] Consequently, the administrative 'tail' of the division had, by necessity, bloated to dangerous proportions. With the possibility that nuclear weapons might be employed on the battlefield, some Army leaders feared that the 'teeth' units on the fighting front might become easily located and subjected to atomic fires.[64] Headquarter units were also perceived to be unnecessarily large and cumbersome for their function.[65] In a standard British armoured division of the middle 1950s the headquarters for the artillery element alone consisted of 35 vehicles and 12 trailers. This mass of transport, with the 80 men it carried, occupied around 10 acres of ground at normal dispersion distances. Considering also that this HQ would have been sited alongside the myriad other supporting units of the Divisional Headquarters, it became clear that this would provide an easy and worth-while target for enemy atomic weapons.[66]

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[61] TNA, WO 279/765, Notes on the British Army, April 1952, pp. 23-24.
[62] Virgil Ney, *Evolution of the U.S. Army Division, 1939-1968* (Fort Belvoir, VA: Technical Operations Inc., 1969), p. 71.
[63] WO 279/765, Notes on the British Army, April 1952, p. 24.
[64] LHCMA, Pyman Papers, PYMAN 9/4, Address to the Royal Armoured Corps Conference, 1954, unpublished lecture notes, 1954. O. D. P. Ratnam, 'Atomic Warfare and Conventional Forces', *United Services Institute India Journal*, Vol. 85, No. 361 (October 1955), p. 336.
[65] R. W. McLeod, 'Some Elements of Mobility', *Army Quarterly*, Vol. 75, No. 1 (October 1957), pp. 50-57.
[66] D. Young, 'New Look Artillery', *Journal of the Royal Artillery*, Vol. 81, No. 4 (October 1954), p. 290.

The infantry divisions were no more economical and at the height of active operations during the Second World War were consuming 400 tons of material per day (260 tons on petrol and ammunition and 140 tons on supplies, mail, engineering equipment, and ordnance stores). One means by which this consumption could be reduced would be by enforcing a harsh standard of living on the troops by cutting all essential items. This might reduce that consumption to 300 tons per day, but even then, it was difficult to image that this, still considerable amount, would be able to be transported to a theatre of operations where major ports and rearward bases would be subject to atomic bomb attack and transport by road would be extremely difficult.[67] For those reasons, some writers argued that in addition to relying on only a minimum number of mechanical transports and other heavy equipment, soldiers should be trained to exist on a low level of subsistence and forgo the many luxuries that Western service personnel had become accustomed to such as chocolate, alcohol, and cigarettes. After all, warned one Army Captain, 'it should be remembered that the Asiatic soldier… is accustomed to exist and fight hard on a ration scale which makes that of the British Army look like a six-course banquet'.[68]

Therefore, for military intellectuals thinking about the future atomic battlefield, streamlining the divisional structure appeared to be of paramount importance. Field Marshal Montgomery told listeners at a lecture to the Royal United Services Institute in 1955 that 'the day of the armoured division and of the infantry division *as we knew them in the late war* is past'.[69] This was echoed a year later by the Deputy Chief of the Imperial General Staff, Sir Dudley Ward, who wrote that 'in the long run it will be the force that can manage efficiently with the minimum tonnages to support it that will best be able to fight out the land battle'.[70]

[67] P. N. M. Moore, 'Goose Eggs', *Army Quarterly*, Vol. 69, No. 2 (January 1955), p. 230.
[68] R. Wright, 'Docking the Tail', *British Army Annual*, No. 2 (March 1955), pp. 98-99.
[69] B. L. Montgomery, 'Organization for War in Modern Times', *The RUSI Journal*, Vol. 100, No. 600 (1955), p. 514.
[70] D. Ward, 'Divisional Organization', *British Army Review*, No. 3 (September 1956), p. 4.

Cautious observers recommended solutions such as the 'standard division', which combined both infantry and armoured units, and were not too dissimilar to their Second World War counterparts, except for a slight reduction in support units. The more progressive atomic theorists, however, suggested more radical concepts arguing that the basic building block of future Army organisations should be the combined-arms battle-group – a unit in similar size to the conventional battalion, which was self-sufficient with little or no administrative tail. Atomic artillery would substitute the myriad heavy artillery pieces that were normally attached to divisions, and infantry would be air-transported to their objectives, circumventing the need for inflexible road-bound convoys.[71] Through various trials and operational research the British Army would eventually reorganise its divisional structure so that it was better suited for nuclear environments, a process which is examined in greater detail in the following chapter.

Emerging technologies, such as the helicopter, also appeared to offer a solution to the Army's mobility problems. As light-infantryman Major J. L. L. Waddy acknowledged, 'if the communications on land have become an anchor to mobile operations, then supply and movement by air must become the means to achieve mobility'.[72] The helicopter had shown potential in a military role on the battlefields of Korea, where British servicemen would have witnessed U.S. forces employ them to great effect in their role as troop transports and supply craft.[73] The Americans themselves were keen advocates of the use of air mobility to circumvent the hazards of the nuclear battlefield, and the Army Chief of Staff, General Maxwell D. Taylor, published work habitually throughout the 1950s to promote his pet concept of 'sky cavalry'.[74]

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[71] 'Cygnus', 'Is My Regiment Really Necessary?', *Journal of the Royal Artillery*, Vol. 82, No. 3 (July 1955), pp. 219-224; Macksey, 'The George Knight Clowes Memorial Prize Essay, 1956', p. 171.
[72] J. L. L. Waddy, 'Helicopters for the Army', *Army Quarterly*, Vol. 69, No. 2 (January 1955), p. 194.
[73] For an overview on the use of helicopters during the Korean War see, J. A. Stockfisch, *The 1962 Howze Board and Army Combat Developments* (Santa Monica, CA: RAND, 1994), pp. 7-12.
[74] See, for example, James M. Gavin, 'The Tactical use of the Atomic Bomb', *Bulletin of the Atomic Scientists*, Vol. 7, No. 2 (February 1951), pp. 46-50; James M. Gavin, *Military Review*, Vol. 35, No. 12 (March 1956), p. 107; National Defense University, Washington D.C., Maxwell D. Taylor Papers [digitized collection], 'Mission of the United States Army', speech given by General Taylor in November 1956, p. 15. Although difficult to ascertain, it is likely that British officers would have read, or at least had been aware, of this literature.

There were obvious benefits in the use of helicopters for tactical manoeuvre on the atomic battlefield since they would be able to avoid congested supply routes on the ground and could transport soldiers over radioactive areas of ground.[75] For those reasons, some theorists believed that the use of airborne troops, as understood in the conventional sense, would play an important role in future atomic land combat.[76] The speed and flexibility with which airborne troops could be deployed on the battlefield appeared to be well suited for exploiting and consolidating atomic attack.[77]

In addition, armoured personnel carriers (APCs) had the potential to provide infantry units with the necessary speed and flexibility to carry out high-tempo operations on the ground while offering them a degree of armoured protection against the effects of nuclear weapons.[78] Thus equipped, wrote Colonel J. D. Frost, infantry formations would be able to perform the types of operations that would be required in atomic land combat since 'they can operate far more widely deployed that normal marching infantry; because they can be moved at speed to reinforce one another, to support one another, to counter attack another's position or to withdraw having inflicted the maximum possible delay on the enemy'.[79] Brigadier C. M. F. Deakin foresaw great flexibility and mobility with the adoption by infantry of APCs, especially in offensive operations, and painted a picture of future war which was 'one of comparatively small armour/infantry groups with RE [Royal Engineer] and monitoring teams and infantry in APCs, all probably wearing masks and protective clothing, penetrating to great depth behind a nuclear and electronic fire plan'.[80]

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[75] C. W. Dunbar, 'Airportability', *British Army Review*, No. 1 (September 1955), p. 71. See, in addition, P. S. Turner, 'Duncan Gold Medal Essay 1955', *Journal of the Royal Artillery*, Vol. 83, No. 2 (April 1956), p. 95.
[76] M. A. J. Tugwell, 'Future of Airborne Forces', *Army Quarterly*, Vol. 70, No. 2 (July 1955), pp. 155-158.
[77] 'Romulus', 'Future Employment of Airborne Forces', *Royal United Services Institute Journal*, Vol. 100, No. 598 (1955), p. 238.
[78] A. E. C. Bredin, 'Kangaroo Infantry', *Army Quarterly*, Vol. 62, No. 2 (July 1951), p. 211.
[79] LHCMA, Liddell Hart Papers, LIDDELL 15/5/283, An Organisation for Battle, unpublished typescript, n.d. [approx. mid 1950s]
[80] LHCMA, Liddell Hart Papers, LIDDELL 15/5/285, Address given by Brigadier C. M. F. Deakin to the Royal Armoured Corps Conference Bovington on Wednesday 4 December 1957, unpublished lecture notes, 1957.

By the middle 1950s, then, military theorists had identified that the threat of atomic attack would prevent force concentrations on the same scale as those that had been necessary to force a decision during the major land campaigns of the Second World War. Stemming from this realisation was the idea that ground forces would need to be able to switch rapidly between dispersal and concentration, since the concentration of force in space would still be required, as it always had, only this time it would only be possible for short periods of time before the risk of atomic annihilation became too great. In turn, this indicated that the Army would need to attain high levels of battlefield mobility so that it could concentrate to fight and disperse to live fluidly. In this context, discourse about the future atomic battlefield became an extension of the debates about mechanization during the 1920s and 1930s. As the inter-war prophets of manoeuvre warfare had foresaw, the lethality and killing power of modern weapons appeared finally to have delivered the death knell to the cumbersome, manpower intensive conventional formations of the first half of the twentieth century. In a similar vain to their spiritual predecessors, the atomic military theorists argued that the Army required improved command and control structures and streamlined organisations that exploited new technologies such as helicopters and APCs.

The Atomic Land Battle

The general characteristics required for an army operating in a nuclear environment had been identified by the military theorists as being: small self-contained units, possessing high levels of tactical mobility, with the ability to sustain independent combat operations divorced from higher command structures and conventional supply lines. There was still the question, however, of how the land battle would actually progress under atomic conditions. It was unclear how the use of tactical nuclear weapons would affect the dichotomy of attack and defence, how troops would have to be deployed on the atomic battlefield, and how battlefield

techniques would have to change to exploit the power of the atom, but avoid its effects. The lack of empirical evidence on which to guide military thought created a number of conceptual difficulties in envisioning how future nuclear operations would progress, and many publicists again looked backwards into military history in the hope of finding clues for the future. Writers also explored anew the principles of war in an attempt to locate an analytical framework for understanding the conduct of warfare in the atomic era.

In trying to understand how nuclear weapons would affect the tactical battle, the starting point for many officers were the tried and tested principles of war. This provided a framework within which the influence of these weapons could be understood and explained. For example, one Captain of the Royal Tank Corps, K. J. Macksey, began his 1956 article for the *Army Quarterly* with the bold assertion that:

> *Presumably* it is not in dispute that the Principles of War remain unchanged even in the midst of the most violent technical and tactical revolutions. If this is so, then the land campaigns of the future will find the germs of their development in the lessons of the past.[81]

It might be seen as natural that some military publicists maintained that the principles of war were as true in the atomic era as they had been during any other period of history. After all, claimed one writer, although training for nuclear land war would tax the imagination of officers 'it can only be sound to base all such training on the principles proved by centuries of war'.[82] Enunciated in such a way, the principles of war gave the professional soldier a tool by which the uncertain consequences of the atom could be dissected, and provided a convenient lens through which the changing military environment could be observed. Some writers advanced the notion that tactical nuclear weapons positively reinforced the significance of certain principles while adding a new twist to others. For example, some officers thought that

[81] K. J. Macksey, 'The George Knight Clowes Memorial Prize Essay, 1956', *Army Quarterly*, Vol. 72, No. 2 (July 1956), p. 16 [emphasis added].
[82] R. S. Broke, 'For Which War?', *Journal of the Royal Artillery*, Vol. 82, No. 1 (January 1955), p. 53.

principles such as 'Surprise', 'Mobility and Flexibility', and 'Morale' would gain greater relevance in nuclear land war, and that the principle of 'Concentration' might be modified to mean that it was as equally important to force the enemy to concentrate in order to provide a suitable atomic target.[83]

However, with a lack of precedent on which to base assessments, it could only ever be a *presumption* that the principles of war would remain unchanged in the atomic era. It might be, as the editor of the *Royal Armoured Corps Journal* pondered, that for 'the first time in the history of war, experienced gained in the immediate past fighting is going to be of little value to the future warrior'.[84] Some military intellectuals were more optimistic and maintained that the basic principles were still sound, but that they would require a slightly different application. After all, stated one observer, 'the physical effects of an atomic explosion are heat, blast, and radiation, the two former of which are not new to war'.[85] It was possible, then, hinted Major General Pyman in an address to the Royal United Services Institute, that the different branches of the Army, such as armour, would still perform its traditional role.[86] This was not to say that all writers agreed that the principles of war would remain relevant in an age of nuclear plenty. In a fictional narrative written for the *British Army Review*, a Major of the Royal Artillery wrote about a future tactical nuclear war where the main protagonist, a young officer who was a product of the 1950s British Army, had been transported into the forward headquarters of an allied nation in a future atomic land war. The character naïvely asked his commanding officer about the principles of war in the nuclear age:

> 'Principles of War!' hooted the general. 'Damme [sic], this is the most unprincipled war I was ever in. What about economy of effort when we use a bomb capable of devastating a town merely to destroy a battalion of infantry? Maintenance of the aim? What aim? If I have any principles left they are:

[83] P. J. Wilkinson, 'Tactical Atomic Support of Ground Forces', *Journal of the Royal Artillery*, Vol. 81, No. 2 (April 1954), p. 130; D. F. Wharry, 'Nuclear Fission and the Principles of War', *Journal of the Royal Artillery*, Vol. 83, No. 1 (January 1956), pp. 58-61.
[84] Editorial, 'Editorial Notes', *Royal Armoured Corps Journal*, Vol. 9, No. 4 (October 1955), p. 169.
[85] M. F. Brogan, 'Tactics and Atomics', *Royal Armoured Corps Journal*, Vol. 9, No. 2 (April 1955), p. 63.
[86] H. E. Pyman, 'Armour in the Land Battle', *The RUSI Journal*, Vol. 99, No. 594 (1954), p. 223.

(a) Never concentrate while the enemy has any missiles left.
(b) Smash the enemy wherever he concentrates.
(c) Ceaseless observation over the whole theatre.
(d) Never let the enemy disengage.'[87]

Therefore, the re-examination of the principles of war by some officers failed to provide any conclusive insights into the conduct of the atomic land battle. Nonetheless, it was better to have an intellectual reference point that was tangential than none at all. After all, highlighted the editor of the *British Army Review*, the atomic military theorists 'are on a good wicket because no one can *prove* by quoting past experience that they are wrong'.[88]

What was becoming clear to military publicists, however, was that ground forces, and their dispositions on the battlefield, would need to abide by the new 'principles' of atomic land war – dispersion, mobility, and self-contained units. It followed that in offensive and defensive operations, ground forces should be deployed in a manner that allowed them to meet those requirements.[89] From this emerged the concept of a series of strongly defended localities, each capable of all-round defence, and positioned in order to dominate important communication centres and terrain features. Each of these positions would be no larger than the brigade sized battle-group envisioned by military theorists. Gaps would be left in-between these positions with the object of luring in enemy formations where they would be destroyed by atomic weapons.[90] For that reason, the defended localities might be deployed in a 'chessboard' fashion, with a number of undisclosed strengthened positions, or 'back-stops', that would force the enemy to concentrate, providing a suitable target for nuclear fires.[91] An essential feature of this type of deployment was the requirement for mobile counter-attack forces attached to each

[87] A. C. McCloy, 'Wham!', *British Army Review*, No. 5 (September 1957), p. 24.
[88] Editorial, *British Army Review*, No. 3 (September 1956), p. 2.
[89] Frederick Brundrett, 'Atomic Bombs and All That', *British Army Annual*, No. 2 (March 1955), pp. 7-8.
[90] W. Bate, 'Maintenance in Nuclear War', *British Army Review*, No. 3 (September 1956), p. 15.
[91] R. L. C. Dixon, 'The Bertrand Stewart Prize Essay, 1956', *Army Quarterly*, Vol. 73, No. 2 (January 1957), p. 169. See, in addition, the concepts outlined in N. B. M. Smithson, 'How Clear is my Crystal?', Vol. 84, No. 3 (July 1957), pp. 222-224 and B. N. Majumdar, 'Logistical Concept for an Atomic War', *Army Quarterly*, Vol. 75, No. 1 (October 1957), p. 108.

locality that could rapidly concentrate to exploit the effects of atomic attack within the killing-grounds. The origins of this concept can be traced back as early as 1948 to the writings of Tuker and others.

However, the concept of 'islands of resistance' deployed in a 'chessboard' fashion dispersed across the battlefield, each charged with defending a centre of resistance against enemy penetrations, was not an innovation by atomic age planners, but had been developed during the Second World War as a means to counter enemy armoured forces.[92] In that conflict, various fire bases ('islands'), bristling with anti-tank weapons, were deployed in tank-proof country such as woods and villages. The battle-space had no flanks and each position had 360 degree protection. The ultimate aim was to canalise the attacking force into unfavourable terrain, which would leave it vulnerable to counter-attack.[93] Noticeably, a defence based on islands of resistance had the potential to work well during atomic land combat. Forcing the attacker to concentrate would create profitable targets for friendly atomic fires; whilst the dispersed positions of the defender would offer some degree of protection against the enemies own nuclear weapons. Like many of the concepts pursued by the atomic military theorists, there was nothing inherently new in this particular scheme, as General G. Le Q. Martel acknowledged:

> We are therefore back to our two types of forces, namely the armoured divisions in which every effort is made to increase mobility without loosing the necessary hitting power, and the infantry divisions which must be capable of digging in at a very high speed and carrying out the more static role. It does not seem that the time has arrived to deviate from the age-old policy of these two types of troops.[94]

Indeed, what the atomic theorists were advocating, consciously or unconsciously, was a classic mobile defence in depth that was reminiscent of the tactics developed by the German Army

[92] Theodore Mataxis and Seymour Goldberg, *Nuclear Tactics, Weapons and Firepower in the Pentomic Division, Battle Group and Company* (Harrisburg, PA: The Military Service Publishing Company, 1958), pp. 127-128.
[93] Miksche, *Atomic Weapons and Armies*, pp. 88-89.
[94] IWM, Private Papers of Lieutenant General Sir Giffard Martel, GQM 6/3d, Land Warfare, April 1955, unpublished typescript.

during the First World War to overcome the stalemate of trench warfare: on the defensive the enemy was expected and allowed to penetrate into the prepared defensive position. At first the attacker encountered only light resistance from outposts. As the attack progressed deeper into the defensive zone resistance stiffened as the attacker encountered strong and entrenched machine gun positions that were capable of all-round defence. This resistance was designed to break up the momentum and cohesion of the attack. At that point the *coup de grace* was delivered by a powerful counterattack force that drove to the previous German frontline and encircled the attacker. On the offensive, small units organised for independent action used favourable terrain to bypass enemy strong points and penetrate into the depth of the enemy positions. Once they had broken into the defensive position proper, they advanced as quickly as possible into the defence. A successful penetration was immediately reinforced. The objective was not to attack enemy infantry – that was cut-off, pocketed, and left for follow-on forces – but the enemy's rear areas, especially artillery positions and centres of command and control.[95] These were the first non-linear tactics, or 'modern system' of attack and defence to use Biddle's phrase, and have remained the basis of manoeuvre warfare ever since. Just like the Germans in 1917 and 1918, British military theorists believed that a defence in depth that combined small independent strong points and strong mobile counterattack forces would provide a solution to the problem of operating in a battlefield environment that was dominated by destructive firepower.

One writer even suggested that this style of land warfare originated with the theories of the German military thinker Alfred von Schlieffen with its emphasis on small pockets of modern firepower covering wide gaps through which mobile forces could fall upon the flanks of the enemy.[96] Another writer traced this type of technique further through history, highlighting that

[95] William S. Lind, 'The Theory and Practice of Manoeuvre Warfare' in Richard D. Hooker (Ed.), *Manoeuvre Warfare: An Anthology* (Novato, CA: Presido Press, 1993), pp. 6-7.
[96] G. C. Wynne, 'Pattern for Limited (Nuclear) War: The Riddle of the Schlieffen Plan – I', *The RUSI Journal*, Vol. 102, No. 608 (1957), pp. 498-499.

this was the method by which the Romans had held Britain, the Crusaders had pacified Palestine, and more recently, the Germans had attempted to maintain themselves in Russia in the early 1940s.[97] As always, there were a number of elements that were fundamental to the success of such a defence: the static defences had to be strong enough so as to force the attacker to concentrate forces which were disproportionately large, thus giving the mobile forces the initiative; the mobile forces had to be securely based so as to be able to concentrate or disperse as the occasion demands; and the static defences must be so placed as to be able to provide mutual support. In atomic land combat, these principles would remain the same; nuclear weapons would merely add a modern twist, mainly that the static positions would have to practice balanced dispersions so that a single atomic bomb would not be able to destroy more than one position in one fell swoop.[98] Captain R. L. C. Dixon of the Royal Tank Regiment believed that the level of dispersion between units in defence would be limited by two factors: 'the need to prevent conventional infiltration in force between them, and the need to make each locality strong enough to resist conventional attack in any strength less than that which would force the attacker to present a nuclear target'.[99] Of course, if the defensive positions could be overcome by conventional tactics without the use of nuclear weapons they would be rendered useless.

Some commentators worried that over-insurance against atomic attack would reduce the combat effectiveness of the mobile troops during the crucial counter-attack phase of the battle. Sir Harold Pyman touched upon this in a speech to 33 Armoured Brigade in 1955 highlighting that attempting to de-fraud the enemy of nuclear targets through dispersion would risk not

[97] D. S. Graham, 'The Great Misconception', *Royal Armoured Corps Journal*, Vol. 10, No. 4 (October 1956), p. 140.
[98] See, F. Le. G. Whitting, 'Duncan Silver Medal Essay, 1954/55', *Journal of the Royal Artillery*, Vol. 82, No. 2 (April 1955), p. 83.
[99] Dixon, 'The Bertrand Stewart Prize Essay, 1956', p. 167. One writer believed that the key to solving this problem was to increase the number of anti-tank and automatic weaponry within infantry units. See, 'Astrologer', 'Clouds in the Crystal', *Army Quarterly*, Vol. 70, No. 1 (April 1955), pp. 89-90.

being able to concentrate armoured units at the crisis point in battle, or even worse, by committing it in penny-packets. Such 'bad habits', warned Pyman, 'would lead to disaster in war'.[100] This risk was considered by U.S. Army Officer Colonel M. A. Solomon who highlighted that dispersion is a *technique* and not a principle of war. He went on to say that 'obviously, dispersion does have some merit. It is an essential fundamental of military technique. However, dispersion is not the answer against atomic weapons. Battles cannot be won by dispersed forces'.[101] This viewpoint was echoed by his colleague Major J. H. P. Curtis who struggled to visualize how units could remain effective whilst operating in wildly dispersed formations.[102] All of these problems pointed towards the need for a balanced, or 'controlled' dispersion on the battlefield. As a Lieutenant Colonel of the Royal Engineers explained in a 1957 article: 'the necessary dispersion to avoid nuclear destruction must therefore, on occasion, be balanced – as a calculated risk – against the concentration of force necessary to fight the tactical battle; as far as possible then, any lack of vital dispersion must be off-set by concealment and protection'.[103]

Even the idea of balanced dispersion was abhorrent to some theorists, however. A number of publicists associated with the Royal Artillery maintained that the heavy (atomic) gun would emerge as the Queen of the Battlefield, and that there would be no hope for any level of open troop concentrations on the battlefield. 'Dig or Die' became their motto, with proponents arguing that such was the unprecedented destructive power of atomic munitions, any open movement on the battlefield would be suicidal and that the humble shovel and a bit of luck would be the key to survival on the atomic battlefield. One officer, in his rather unambiguously

[100] LHCMA, Pyman Papers, PYMAN 9/8, Speech to 33 Armoured Brigade, unpublished lecture notes, n.d. [approx. 1955]. For a similar view see, William F. Train, 'The Atomic Challenge', *Military Review*, Vol. 36, No. 8 (November 1956), p. 6.
[101] M. A. Solomon, 'Dispersion is not the Answer', *Military Review*, Vol. 31, No. 3 (June 1951), p. 42.
[102] J. H. P. Curtis, 'The Army of the Future', *Military Review*, Vol. 37, No. 9 (December 1957), p. 43.
[103] R. A. Barron, 'The Division in Nuclear War', *Royal Engineers Journal*, Vol. 71, No. 3 (September 1957), p. 249.

titled 1956 article, 'The Principle Weapon', envisioned a style of warfare which equated to an atomic gun dual – with armour and infantry reduced to the supporting role of protecting artillery crews in static defensive positions while opposing gunners worked to identify and destroy one another with atomic fires.[104] A Captain in the Royal Artillery suggested that this type of land war might resemble mobile chess, with various combinations of low value columns trying to capture or destroy the Atomic Queen.[105] Another writer believed that the superiority of firepower over manoeuvre would see a return to a style of warfare that was more reminiscent of the First rather than the Second World war, with each side clinging to each other sheltered by ever deeper and more elaborate earthworks.[106]

Other critics of the fortress and mobile striking force conception of defence maintained that individual static positions would be simply too vulnerable to atomic attack and that 'even if every man were to devote all his energy to digging for hours, if not days, protection against the tactical nuclear weapon would still be inadequate'.[107] The assumption that men could merely dig a little deeper to avoid the effects of firepower had first emerged in the years leading up to the First World War, but as the grim fighting of that conflict testified, even the most formidable fortresses, bunkers, and fieldworks could, given enough time, be reduced to rubble through conventional artillery barrages.[108] Since the atomic bomb could deliver the equivalent of thousands of tons of conventional high explosives in an instant, rather than over a period of days, it appeared that this would be doubly true in nuclear combat. The dilemma was that if the defensive bastions were dispersed widely enough to mitigate the effects of atomic attack, the

[104] J. H. P. Curtis, 'The Principle Weapon', *Journal of the Royal Artillery*, Vol. 83, No. 4 (October 1956), pp. 244-250.
[105] D. N. Howell-Everson, 'Are We Training for the Right War?', *Journal of the Royal Artillery*, Vol. 81, No. 4 (October 1954), p. 288.
[106] M. E. Bransby-Williams, 'Duncan Silver Medal Essay 1955', *Journal of the Royal Artillery*, Vol. 83, No. 3 (July 1956), p. 167.
[107] G. P. Crean, 'Death of a Dinosaur', *Army Quarterly*, Vol. 73, No. 1 (October 1956), p. 106; N. B. M. Smithson, 'To Be or Not to Be? Is that the Question?', *Journal of the Royal Artillery*, Vol. 83, No. 4 (October 1956), p. 288. See the thoughts of an infantryman on this matter in E. O'Balance, 'Thoughts of an Infantryman Under Nuclear Pressure', *British Army Review*, No. 2 (March 1956), pp. 50-53.
[108] Biddle, *Military Power*, p. 30.

whole defensive position would become easily overrun using conventional tactics.[109] Other publicists argued that history showed that any isolated defensive position with open flanks usually became surrounded and destroyed sooner or later and that 'few commanders would be happy about staunching the flow of an enemy through a twenty-mile gap between two insecure boxes, bastions or hedgehogs'.[110] Moreover, it was possible that the attacker would simply avoid entering the atomic killing-grounds and bypass the static defences through wide flanking movements as was common in highly mobile operations.[111]

There were other means by which atomic theorists believed that an opponent could be forced to concentrate without the need for prepared atomic killing-grounds between dispersed defensive locations. One was by preparing defensive positions overlooking a natural or artificial obstacle. Again this was not a new concept since land forces have always sought to dominate terrain features that conferred a tactical advantage on the battlefield. In tactical nuclear warfare, it was possible that river lines and minefields could be used to force the enemy to concentrate where it could be then destroyed by atomic fires.[112] The techniques developed for defending an obstacle in conventional warfare would need modification for the nuclear battlefield, however, the most important of which was that it should be defended by mobile troops and not, as was usually the case, by static infantry positions.[113] Another means by which an opponent could be forced to concentrate was to exploit the radioactive properties of nuclear weapons and deny certain pieces of ground to the enemy, forcing it into congested areas of terrain where it could be canalised and destroyed.[114] In this context, the use of radiation to deny

[109] Crean, 'Death of a Dinosaur', p. 106.
[110] D. S. Graham, 'The Future of the Regiment', *Journal of the Royal Artillery*, Vol. 84, No. 2 (April 1957), p. 108.
[111] V. P. Naib, 'Mobile Defence', *The RUSI Journal India*, Vol. 86, No. 364 (July 1956), p. 223.
[112] M. R. W. Burrows, 'Atomic Warfare and the Infantry Division', *Journal of the Royal Artillery*, Vol. 82, No. 2 (April 1955), pp. 118-121.
[113] M. R. W. Burrows, 'The Forcing of an Obstacle', *Journal of the Royal Artillery*, Vol. 82, No. 4 (October 1955), pp. 295-296.
[114] Brogan, 'Tactics and Atomics', p. 68.

areas of ground favourable to the enemy would be analogous to the offensive use of gas during the First World War.[115]

In these types of conditions, it was likely that engineers would play an increasingly significant role on the battlefield.[116] For example, the crossing of obstacles in attack would require a specialist engineer output. During the Second World War, 1,445 Baily bridges were built by 21st Army Group alone between 6 June 1944 and May 1945. In a future war in North West Europe it was likely that such an extensive effort would be required again. In nuclear war, however, the maintenance of mobility would be paramount and would entail close support from engineers with specialist bridging equipment.[117] Furthermore, the standard fortifications that were suitable for conventional war would require special treatment under nuclear conditions if they were to protect soldiers from atomic blast – they would have to be of considerable strength, be able to be deployed in great haste, and would be required in high numbers throughout the theatre of operations.[118] This would require engineers that were specially trained for atomic conditions and equipped with advanced apparatus, including armoured personnel carriers.[119]

Another consideration for atomic theorists thinking about the actual conduct of battle, but one that appeared to emerge as an afterthought was how soldiers would maintain their combat effectiveness in what would be an extremely violent and stressful operating environment. Not only would men have to fight in the shadow of instantaneous atomic annihilation, but the high levels of battlefield dispersion necessary to reduce that threat would mean that units and

[115] 'Musketeer', 'The Tactical Employment of Atomic Weapons', *Royal Armoured Corps Journal*, Vol. 7, No. 2 (April 1953), pp. 60-61.
[116] J. E. L. Carter, 'Engineering in Extremis', *Royal Engineers Journal*, Vol. 69, No. 1 (March 1955), p. 36.
[117] M. J. W. Wright, 'The Cooper's Hill War Memorial Prize Essay 1956', *Royal Engineers Journal*, Vol. 70, No. 3 (September 1956), p. 225-226.
[118] G. N. Tuck, 'The Engineer Task in Future Wars', *Royal Engineers Journal*, Vol. 68, No. 2 (June 1954), pp. 114-115.
[119] M. L. Crosthwait, 'Speed and Surprise in an Atomic War', *Royal Engineers Journal*, Vol. 68, No. 2 (June 1954), p. 128; J. D. Goodship, 'Divisional Engineers in the Atomic Era', *Royal Engineers Journal*, Vol. 71, No. 2 (June 1957), pp. 125-130; R. L. France, 'Armoured Engineers', *Royal Engineers Journal*, Vol. 71, No. 3 (September 1957), pp. 239-245.

individuals would be isolated in the field. Senior officers acknowledged that this greater dispersion would place a premium on minor tactics and the superlative skill of junior commanders.[120] These small units, detached from other elements of the Army and the higher command, would also need to possess a high degree of morale and discipline if it hoped to be able to fight and survive on the atomic battlefield.[121] The unique effects of nuclear weapons, however, particularly radiation, would pose a challenge to the individual will to fight like never before. As one writer noted, 'the radiation effects of nuclear weapons will be sinister and frightening for those who do not understand them. It is impossible to see anything, to feel anything or to taste anything'.[122] Training and education would go some way to preparing the Army for fighting under the threat of atom bomb attack but, ultimately, nobody could be certain how soldiers would react if tactical nuclear weapons were introduced to the battlefield. One Colonel drew an analogy with the first use of gas during the First World War, arriving at the grim conclusion that: 'It seems that human beings are infinitely degraded by the close menace of some foul, lethal thing, immeasurably bigger than themselves, against which there is no defence. It revolts them and saps their very essence'.[123]

Thus, the atomic land battle would be unlike anything that had come before and would put to the test the morale, training, and skills of soldiers and commanders. It would also force a seismic shift in what was considered the traditional tactical deployments for troops in the field. Fixed front lines, which had hitherto been an enduring feature in land warfare, would most likely give way to a more open battle-space. This would blur the lines between attack and defence, creating a fluid battle environment where each side was at once attacking and

[120] M. R. Roberts, 'The Importance of Patrols in Nuclear Warfare', *The RUSI Journal*, Vol. 100, No. 60 (1955), p. 575.
[121] L. H. Landon, 'What Sort of Army?', *Journal of the Royal Artillery*, Vol. 82, No. 3 (July 1955), p. 216. These issues have been the perennial problems of greater dispersion. See, Biddle, *Military Power*, p. 38.
[122] J. N. W. Hearn, 'Nuclear Weapon Effects and Target Response', *British Army Review*, No. 5 (September 1957), p. 20.
[123] T. I. Lloyd, 'Nuclear Arms and the Service Man', *Royal Engineers Journal*, Vol. 68, No. 4 (December 1954), p. 354.

defending. Although, at first look, the concepts advanced by military theorists to enable the Army to operate in this environment, such as 'islands of resistance' and atomic 'killing-grounds' appeared radical, they were, in fact, classic manoeuvre based approaches to war-fighting that would facilitate the exploitation of the atomic bomb, whilst reducing its effects.

Conclusions

It is clear that throughout the late 1940s and 1950s British Army officers displayed a remarkable interest in thinking critically about the atomic battlefield. The major professional service journals were inundated with articles covering many aspects of nuclear weaponry and how those weapons might influence the conduct of a future ground war. The views of each of the major branches of the Army – infantry, armour, and artillery – were represented, and the writers themselves held a variety of ranks, from junior captains and majors right through to full colonels. Many of these officers contributed only a single article for publication throughout the whole period under review, although others did produce more, perhaps two or three. For that reason, individual officers can hardly be described as being some of the great military intellectuals of their time, and when their limited writings are viewed in isolation, they can be easily dismissed as being the mere musings of interested soldiers discussing narrowly focused technical subjects specific to one particular branch or service specialism. Yet, theory is personal, and these were theories of war. When taken together, this considerable body of work can be seen to constitute the burgeoning theory of tactical nuclear warfare in Britain and provides a snapshot of the professional officer corps' thinking on the tactical application of nuclear weapons during the early Cold War period.

The professional soldier is often criticised in peacetime for planning for the last war. This statement becomes rather problematic when applied to the British atomic theorists after 1945. It is clear that many writers during this period did look back to the experiences of the First and

Second World Wars, and even further into antiquity to the mobile cavalry actions characteristic of the wars of the Middle Ages. Yet, in so doing, this provided theorists with intellectual reference points with which to look *forward* into the future. Officers sought practical evidence from military history, so-called 'lessons', that would help to unravel the mystery of the atom. This use, or misuse as critics might say, of history meant that different conclusions were drawn by different theorists as to how the experiences of the past might inform thinking about the future. For example, some writers maintained that the destructive power of tactical nuclear weapons would see a battlefield completely dominated by highly destructive firepower. For these officers, the Army's operational experiences on the Western front during the First World War provided the best insight into how a future atomic land war might look like and the types of forces that would be required to fight it. Other theorists believed that the experiences of armoured warfare during the Second World War appeared to be the best framework for understanding the changing character of warfare. Specifically, that war appeared to show that the large, cumbersome, manpower-heavy divisions, with their bloated administrative echelons would become too vulnerable to destruction by atomic fires, and that what was required were new flexible organisations and an unprecedented increase in tactical mobility.

That there were contrasting visions of a future war is not surprising. The atomic military theorists were not working in an intellectual, professional, or political vacuum. As the first section of this thesis has shown, the background against which these writers were publishing their articles was one of fiscal stringency; increasing government pressure to reduce Army conventional forces; and uncertainty about the future of the service in a rapidly changing military environment. These external factors bore their mark on the writings of the military theorists, many of whom took partisan views in order to promote the continued relevance of cherished capabilities. Proponents of armoured forces argued that tank warfare would play a decisive role in a future war; gunners maintained that the future battlefield would become

dominated by the atomic cannon; whilst infantrymen reaffirmed the importance of traditional infantry combat to the successful conduct of atomic land warfare. This is not to say, however, that these theories were political statements, but the bureaucratic environment within which the publicists were working certainly influenced their perceptions of the changing character of warfare and the Army's role within it.

Although there were some differences in opinion between officers as to what would be the most likely character of a future land war, there did emerge some common themes that formed the cornerstones of the theory of tactical nuclear warfare in the British Army during this period. These 'principles' of atomic land war were that the primary tactical elements of the Army must be self-contained units capable of maintaining independent combat operations; troops on the ground were to practice controlled dispersal at all times; and those forces must be capable of considerable battlefield mobility. These theories were personal, however, to each individual writer – they owned it and took responsibility over it. This has to be contrasted with official doctrine, which is corporate as it was endorsed by the Army Council. How Army doctrine for tactical nuclear warfare was developed during this period, and the influence that this theory had upon the formulation of that doctrine, is the subject of the final chapter.

Chapter VI

Preparing for Nuclear Land Combat

The purpose of military doctrine is to provide a cohesive body of thinking to guide preparations for that most unpredictable and constantly changing business of war-fighting.[1] The speculative nature of peacetime doctrinal development means that it is fraught with risk and could spell disaster for the military organisation that draws faulty assumptions about the future character of warfare, so ably demonstrated by the French in 1940. Get it right, however, and this might provide a decisive edge over one's adversary.[2] Fundamental to military doctrine, then, is its predictive component. It seeks to analyse previous conflicts to learn from them, assesses the changing character of warfare, and peers into the future in order to identify the types of forces that will be needed to fight and prevail.[3] That there is a clear link between the past, the present, and the future means there is an attendant risk, warned Michael Howard famously, that the unintelligent study of military history for the purposes of aiding preparations for the future can be more dangerous and damaging to a military organisation than no study at all.[4] As the previous chapter has shown, the officer corps had sought to gain insights from military history in their attempts to unravel some of the mysteries of the atom and help prepare the Army for the uncertainties of tactical nuclear warfare. These theories of war provided the background against which doctrinal development took place.

Historically, however, the British Army's engagement with formal doctrine has been chequered. David French has argued that during the Second World War the General Staff took a *laissez-faire* attitude towards doctrine which, by failing to nurture a common understanding

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[1] Paul Latawski, *The Inherent Tensions in Military Doctrine*, Sandhurst Occasional Papers No. 5 (Camberley: Royal Military Academy Sandhurst, 2011), p. 24.
[2] See the conclusions drawn by Barry R. Posen in his *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (New York, NY: Cornell University Press, 1986).
[3] Charles Grant, 'The Use of History in the Development of Contemporary Doctrine' in John Gooch (Ed.), *The Origins of Contemporary Doctrine*, The Occasional No. 30 (Swindon: Strategic and Combat Studies Institute, 1997), p. 9.
[4] Michael Howard, 'The Use and Abuse of Military History', *The RUSI Journal*, Vol. 107, No. 625 (1962), p. 7.

of it, undermined the Army's military effectiveness.[5] The British Army has also been observed to rely more for its doctrine on stated principles rather than prescriptive dogma.[6] This has not always been seen as a wholly negative approach, however. The influential military theorist J. F. C. Fuller wrote during the inter-war period that doctrine should be built upon the foundations of the principles of war and be elastic enough to give commanders freedom of decision across the full spectrum of tactical situations. Fuller believed that the danger inherent in any doctrine was that it might 'ossify into a dogma'.[7] Indeed, he believed that one of primary reasons why tactical engagements stagnated on the Western Front during the First World War was because the British General Staff were 'monastic in mind' and accepted antiquated dogmas that did not reflect the changing character of warfare.[8]

There were, in addition, geo-strategic reasons unique to the British Army that made a formal written doctrine less relevant. In 1900, the military thinker and the British Army's greatest advocate of the academic study of military history, G. F. R. Henderson, wrote that it would be useless for the British Army to attempt to predict where in the world it might next be called upon to fight and the type of enemy it would face.[9] Unlike other contemporary European armies, Britain's land forces could be asked to perform a number of operations as a result of the nation's considerable overseas security commitments consonant with the foreign policy of the world's largest imperial power. This made it difficult, if not impossible, to foresee with any accuracy what type of armed conflagration the Army would be directed to extinguish. Whereas continental land powers such as France or Germany could, due to their geography and strategic priorities, make clear assumptions as to where a future war would be fought and against whom

[5] David French, *Raising Churchill's Army: The British Army and the War against Germany, 1919-1945* (Oxford: Oxford University Press, 2001), p. 279.
[6] David French, *Military Identities: The Regimental System, the British Army, and the British People c. 1870-2000* (Oxford: Oxford University Press, 2005), pp. 344-345.
[7] J. F. C. Fuller, *The Foundations of the Science of War* (London: Hutchinson & Co., 1926), p. 254.
[8] J. F. C. Fuller, *The Reformation of War* (London: Hutchinson & Co., 1923), p. 231.
[9] G. F. R. Henderson, *The Science of War* (London: Longmans, Greene, and Company, 1906), p. 42.

(usually on local terrain against ones neighbour), the British Army did not have this luxury. Therefore, the British Army struggled to develop a viable military doctrine because of the lack of a master 'template' to guide the development of a standard army-wide set of doctrinal instructions. Hew Strachan has argued that this is reason why the Army should not have sought to develop a formal written doctrine because of the risk of preparing the Service to face the wrong enemy at the wrong time and in the wrong place.[10]

With the burgeoning Cold War after 1945, however, all of this was to change. As Chapter III has shown, the Soviet Union emerged as the Army's only possible threat with regards to high-intensity war-fighting operations. Military planners had some knowledge of the organisation, tactics, and doctrine of the Red Army and possessed a sound insight into how a Soviet land offensive might develop in a future war. Furthermore, with the British Army of the Rhine a permanent fixture in Central Europe, commanders had time to study the local terrain upon which they would be tasked to fight and envisage how a defensive battle might be conducted. The result was that, as far as the Rhine Army was concerned, there was now a particular scenario against which military planning could progress and doctrine could be developed. This chapter argues that since some of the predictive elements of doctrinal development and imponderables unique to the British Army were reduced in the 1950s this allowed greater opportunities for the advancement of a formal written doctrine.

Furthermore, in the technological sphere it was certain that any major ground war in Europe would see the tactical application of nuclear weapons from the outset, by both belligerents. Officers had begun to think about the impact that nuclear weapons might have on the land battle since the late 1940s, as the pseudo-official writings in the service journals testify. At the same time, military exercises began to feature the use of atomic bombs while the Army Council

[10] Hew Strachan, 'Introduction' in Hew Strachan (Ed.), *Big Wars and Small Wars: The British Army and the Lessons of War in the 20th Century* (Oxford: Routledge, 2006), pp. 3-5.

officially sanctioned a fresh look at the organisation of the Army in light of the nuclear revolution. Although these early forays into the realm of atomic warfare were hamstrung through a lack of detailed information on the technical characteristics of the bomb, by the middle 1950s sufficient data was available to allow a more focused study on the impact that the tactical use of nuclear weapons might have on the conduct of land warfare. Thus, the combination of both a firm conceptual basis of where a future war would be fought and against whom, and a sound appreciation of what types of weapons would be employed, made it possible to work on the development of a doctrine that would prepare the Army for the nuclear land battle in Central Europe.

The chapter shows that through the conduct of military exercises and war games, operational research, and through a study of military history, Army research groups and working parties were able to produce a firm empirical base that allowed the development of a doctrine for nuclear ground combat. The first section examines early thinking about the tactical application of nuclear weapons during the late 1940s and early 1950s. It assesses a number of military exercises that were conducted by the Army and how this influenced official thinking about nuclear war-fighting. The second section looks at the maturation of nuclear doctrine in the middle 1950s and shows how Army training and reorganisation took on a nuclear theme. The final section considers the state of Army nuclear doctrine at the end of the 1950s and posits that although there were a number of unknowns, the Army was largely successful in establishing an official written doctrine for nuclear ground war.

Early Exercises and the Atomic Bomb

As previous chapters have illustrated, a lack of detailed information on the technical characteristics of atomic bomb made it difficult to assess with any accuracy how those weapons might influence a future land war. The first major War Office exercise in the post war years,

exercise EVOLUTION of August 1946, alluded to this fact. The exercise was organised by the Chief of the Imperial General Staff, Field Marshal Bernard L. Montgomery, and had the aim of enunciating in broad outline a tactical doctrine for the Army. One of the papers that was issued to officers before the exercise stated under the heading 'Important Points to Remember' that 'the implications of the atomic bomb on strategy are now being studied' but that 'it is too early to make any deductions'. It went on to say that in a future war the atomic bomb would probably be employed strategically against the enemy and that some commentators had suggested that this would have decisive results, with the role of the Army being relegated to one of 'mopping up'.[11] In a rather polemic riposte to this proposition, the paper stated that:

> A revolutionary conclusion of this nature should not be accepted unless the evidence to support this is incontestable. No such evidence is yet available, nor may it be for many years. We must therefore be prepared, as in the past, for battle on land.[12]

The first exercise that factored in the use of atomic weapons was exercise SPEARHEAD, which took place at the Army Staff College, Camberley, between 5 and 10 May 1947. Again, this exercise had been organised by Montgomery, the object of which was to study the technique of opposed landing. It was set two years in the future in 1949 and dealt with the invasion of the Italian mainland by British forces that were opposed by the Axis powers as they had been organised during the final years of the Second World War.[13] Essentially, it was a re-run of the Salerno landings during operation AVALANCHE in 1943, but with a modern twist.

That twist was the atomic bomb. Echoing the cautious sentiments that had been expressed during EVOLUTION, the exercise planners explained that 'at the present stage of scientific development it is not possible to obtain a workable picture of the conditions of unrestricted atomic and bacteriological warfare' and warned that there was therefore a limit to the degree

[11] TNA, WO 279/191, War Office Exercise: Evolution, papers issued personally by CIGS to all Commanders, August 1946, p. 4.
[12] Ibid., p. 5.
[13] TNA, WO 216/202, War Office Exercise Spearhead, The Staff College Camberley, Introduction to the Exercise, May 1947.

to which such weapons could be introduced into a military exercise. Nonetheless, planners hoped to introduce, with the limited knowledge that they possessed, some aspects of nuclear warfare into their exercise. However, they were keen to highlight that 'only the fringe of the subject has been broached, and that in the widest sense the generally accepted battle technique of the past has not been superseded'.[14] Certain presumptions on the effects of atomic weapons on the Army were made, nonetheless, before the beginning of the exercise. The first was that the antidote to the destructive power of the atomic bomb would be dispersal carried to a greater extent than in the past. Second, defensive forces would have to deploy in depth and along a wide front to avoid presenting a worthwhile target for enemy nuclear weapons and, as a consequence, must possess a great degree of flexibility so that they could concentrate rapidly against threatened points. Third, attacking forces would require even greater flexibility and high levels of tactical mobility so that they could concentrate for attack but disperse quickly afterwards. Fourth, night operations, camouflage, and deception would probably play a more important role during operations under atomic conditions.[15]

The Army outline plan for the exercise provides some insight into how military planners would have approached the challenges of mounting amphibious operations under nuclear conditions during these early years of the atomic era. During the assault, commanders would have to accept a wide degree of dispersion so that a large beachhead could be established in which follow-on forces could deploy in relative safety from atom bomb attack. This dispersal, however, 'must not be so great that the frontage becomes tactically unsound'.[16] The beachhead would then have to be pushed out as rapidly as possible to secure tactical ground in order to deny enemy observation over the beaches and to gain space for the dispersal of administrative

[14] TNA, WO 216/202, Future Weapons and the Effect of Their Introduction into Exercise Spearhead, May 1947, p. 1.
[15] Ibid., pp. 2-3.
[16] TNA, WO 216/202, War Office Exercise Spearhead, The Staff College Camberley, The Army Outline Plan April 1949, May 1947, p. 3.

facilities.[17] In this phase, speed would be essential. To prevent enemy mobile defence forces from checking the break-out thrust from the beachhead, 'the possibility of employing an atomic bomb…is being considered at Supreme Allied Headquarters'.[18]

The conclusions that were reached as a result of this exercise were not too dissimilar to the ones reached by military publicists during the same period, particularly by Colonel A. Jolly in his 1946 article for the *Royal Armoured Corps Journal*. Such was the immense destructive power that could be concentrated in time and space by the atomic bomb, dispersion and flexibility of movement would be essential. Addressing participants after the exercise, Field Marshal Montgomery stated that:

> Military thought and tactical doctrine must always be well in advance of the time; the Army must be prepared mentally for new types of weapons and for the changed conditions of war which they bring about. The need to avoid large concentrations of troops vulnerable to mass destruction weapons conflicts with the tactical need to concentrate superior forces to overwhelm the enemy at the select time and place. The need to concentrate to achieve success in the offensive battle will continue but, in view of the dangers, concentration must be carried out as secretly and as quickly as possible. The tactical battle must be won as soon as possible so that the danger period is kept short and the Army may again seek safety in dispersion as early as possible.[19]

In order to achieve these aims, Montgomery believed that the Army would have to increase its efficiency in cross-country mobility, flexibility, and in its ability to deceive its opponent.[20] Again, this was something that unofficial doctrine writers and theorists had written about in some of the major service periodicals of the day. The CIGS was pleased with the insights provided by the exercise, writing privately to his long-time friend and erstwhile chief of staff, Francis de Guingand, that 'my Camberley exercise, Spearhead, was a tremendous success: quite the best thing I have seen for a long time'.[21]

[17] Ibid., p. 4.
[18] Ibid., p. 6.
[19] TNA, WO 216/202, Exercise Spearhead, Final Address by CIGS, 10 May 1947, p. 18.
[20] Ibid., p. 18.
[21] IWM, Montgomery Ancillary Collections 4, Montgomery to Francis de Guingand, 1 June 1947.

The growing realisation that the Army would need to attain greater mobility and flexibility began to be reflected in War Office policy statements for equipment programmes. In the important field of armoured fighting vehicles, a statement on future tank policy articulated the requirement for cross country mobility of the highest order since the Second World War had shown how inadequate all tanks had been in this regard. The tactical handicaps brought about by this deficiency had been a point on which the unofficial doctrine writers had been keen to highlight in their publications. The statement went on to say that cross country mobility would be of greater importance in the future since 'the increasing power of the air and rockets will certainly enforce the widest dispersion…thus making cross country movement essential'.[22] Although not stating explicitly the threat posed by the atomic bomb, the papers acknowledgement of the 'increasing power' of modern air power and rockets implies that nuclear weapons were not far from the minds of the General Staff. Increased dispersion and cross country movement would also mean improvements in communications would be necessary. Thus, a policy statement was issued in April 1948 that recommended the development of enhanced signal equipment and an increased utilisation of wireless devises. The justification for the statement was that:

> Modern mass destruction weapons will compel the field army to greater dispersion, while more rapid and flexible transportation will enable it to effect higher speeds of concentration and movement. These combine to require longer range and more flexible means of communication.[23]

In October 1949, two large-scale manoeuvres in Germany, AGILITY ONE and AGILITY TWO, exercised the British Army of the Rhine and other allied formations in the conduct of offensive and defensive operations. 7 Armoured Division was to plan and execute an attack launched through an infantry formation and a break-out battle, while 2nd British Infantry

[22] TNA, WO 33/2575, General Staff Policy Statement No. 1, Tanks, 1 August 1947.
[23] TNA, WO 33/2575, War Office Policy Statement No. 25, Signal Equipment, 30 April 1948.

Division was to practice all manner of defensive techniques including night withdrawals and counter-attacks.[24] The exercises provided valuable insights into the conduct of land warfare in the modern technological environment. Summing up after the exercises, the Rhine Army's Commander-in-Chief, Lieutenant General Sir Charles Keightley, made a number of comments regarding the employment of armoured forces. The most important point was that the traditional practice of concentrating armoured formations in the hope of finding and destroying its enemy counterpart would be unlikely to happen in future battles. This did not mean that armour would be committed in penny-packets, however, only that 'in modern war you do not want a mass of tanks sitting about in the open'. Tanks would therefore have to be adequately dispersed so as not to invite air attack, but should still be capable of massing force at the decisive point in the battle. This would be achieved through 'sound planning and good communication'.[25]

The exercises also highlighted the extent to which the administrative tail of the armoured division had bloated. A report by the Standing Committee on Army Post-War Problems, dated 9 November 1950, stated that the review of the organisation of the armoured division must be conducted against the background of the conditions of the next war, which would be significantly different from those of the closing stages of the Second World War. The report suggested that it would be necessary to think of the first year of a future war as a 'battle for survival'. There would be a shortage of tanks and equipment, the battle itself would be conducted in an extremely adverse air situation, and the enemy would hold the initiative with a numerical superiority in both men and material. During this phase in Central Europe, British forces would be thrown on the defensive and 'the tactical role of the armoured division is assumed to be counter-attack with limited objectives'. Mobility and flexibility would therefore

[24] TNA, WO 216/594, Combined Exercises, Agility One and Agility Two, Exercise Instructions for Ground Forces, October 1949.
[25] TNA, WO 231/56, Combined Exercises, Agility One and Agility Two, Final Report, October 1949.

be of paramount importance. The ultimate aim was to create an armoured division which was 'both "handy" and hard-hitting'.[26]

A month after the report was circulated the British Army of the Rhine was exercised in mobile operations, providing further opportunities to assess force compositions. Exercises BROADSIDE ONE and BROADSIDE TWO, which took place in September 1951 upon the ground on which the Rhine Army would fight in a future war, were designed for Army formations to practice movement and concentration in the face of enemy air superiority and the conduct of operations on a wide front, including rapid concentrations for attack and dispersal afterwards.[27] This was a clear attempt to gain some insight into the challenges of fighting on a battlefield where enemy airpower would complicate movement on the ground. Nuclear weapons were not mentioned explicitly in the exercise instructions, but the emphasis on practicing quick concentration and dispersion implies a realisation that these techniques would be important under the threat of weapons of mass destruction. One important feature of the exercise was the observations made as to the utility of natural obstacles, especially river lines, during defensive operations. The post-exercise report stated that river lines must not be understood as something that needed to be physically held by troops, but as an aid to defeating the enemy. The real value of a river line was believed to be its ability to canalise the attacking troops into predetermined killing areas.[28]

As will be recalled from the writings of military publicists, the use of natural obstacles to force the enemy into prepared killing grounds became intimately linked to the tactical application of nuclear weapons. As early as January 1949, Field Marshal Montgomery, who was now Chairman of the Western European Union Commanders-in-Chief Committee, asked the British Chiefs of Staff to initiate a study on the defence of a major water obstacle. The

[26] TNA, WO 32/13858, ECAC/P(50)109, Organization of the Armoured Division, 9 November 1950.
[27] TNA, WO 231/59, Joint Exercises Broadside One and Broadside Two – Final Report (Army), December 1950.
[28] Ibid.

Chiefs agreed, who referred the matter to the Defence Research Policy Committee (DRPC) for assessment.[29] Montgomery was keen to ascertain whether there were any scientific devices that could be exploited in order to help outnumbered land forces repel a Soviet advance across a river line.[30] The DRPC duly presented the Chiefs of Staff with the report, who agreed with its general recommendations. The Chiefs also decided that the broad conclusion from the report should be conveyed to Field Marshal Montgomery and that the War Office should now take action as necessary on the detailed recommendations outlined in the study.[31]

Two major army exercises held in May 1950, the Western Union exercise UNITY, conducted by Field Marshal Montgomery, and the War Office exercise HORATIUS, revealed the absolute importance of a number of scientific requirements for the land battle in relation to the defence of a river line, in particular the use of the atomic bomb in a tactical role. As was becoming clear in the alliance context, one of the principle conclusions resulting from the exercises was that the small land forces expected to fight in a future war in Europe would not be able to hold-off the Soviet masses 'without the use of mass destruction weapons… on the battlefield'.[32] Consequently, on 14 February 1951, the Chiefs of Staff invited the War Office to initiate a study on the tactical use of atomic weapons with a view to examining:

> The types of target in the different phases of warfare against which it would be profitable to employ atomic weapons and how they would supplement, extend, or be used in substitution of existing methods of fire support both ground and air.[33]

That the tactical use of atomic weapons was intimately linked to the defence of a major water obstacle is further evidenced by the fact that the key resource providing the foundations to the War Office nuclear study was a 1950 report by a working party activated by the Joint Chairmen of the Land/Air Warfare Policy Sub-Committee to assess the best methods of using atomic

[29] TNA, DEFE 10/37, DRP(49)1, Defence of River Lines, 11 January 1949.
[30] TNA, DEFE 10/37, DRP(49)16, Defence of River Lines, 1 November 1949.
[31] TNA, DEFE 10/26, DRP(50)15, Defence of River Lines, 1 February 1950.
[32] TNA, DEFE 10/27, DRP(50)96, The Scientific Requirements for the Land Battle, 2 August 1950.
[33] TNA, WO 231/41, MO1/LM/21/4, The Tactical Use of Atomic Weapons, 15 March 1951.

bombs in defence of a river line.[34] 'Defence of the River Line', which the paper became subsequently known, was important according to the Chairman of the Defence Policy Research Committee, since 'for the first time it concentrated attention on the tactical use of the atomic weapon'.[35]

The completed War Office report stated that atomic weapons could be used profitably against large concentrations of troops and artillery and might be of 'outstanding importance in repelling an invasion or for breaking up a major assault on a river line'.[36] The tactical situation envisaged for this type of tactical use was the one constructed for 'Defence of the River Line' which anticipated an attack at four points across a river by an attacker that enjoyed a 4 to 1 superiority in manpower. It was believed that the simultaneous delivery of three air burst atomic bombs against each of the assault points would be enough to paralyse the offensive. Ultimately, however, the report suggested that the effectiveness of the atomic bomb as a tactical weapon would be dictated by enemy deployments.[37] As the previous chapter has shown, this was a point acknowledged by military theorists, who had reached the conclusion that heavy concentrations of troops would become uniquely vulnerable to atomic attack. It was possible that greater mechanisation might allow an attacker to deploy in less density while preparing to cross a river obstacle, but ultimately any attacker would be forced to concentrate in space in order to overcome the defence and maintain the momentum of the assault.[38]

With regards to the general mechanization of the British Army, the War Office had begun to think seriously about the re-organisation of the armoured division by 1951. Field officers who possessed experience in handling armoured formations during the 1939-1945 war were consulted. Their recommendations made it apparent that some reduction in the size of the

[34] TNA, DEFE 5/25, COS(50)481, Best Method of Using the Atomic Bomb in the Defence of a River Line, 18 November, 1950.
[35] TNA, DEFE 10/37, DRP(50)23, Defence of River Lines, 17 October 1950.
[36] TNA, DEFE 5/31, COS(51)344, Report on the Military Aspects of Atomic Energy, 6 June 1951.
[37] Ibid.
[38] Ibid.

armoured divisions would be necessary to meet the conditions of future war because of the increasing weight of the armament and ammunition of modern tanks which resulted in higher petrol consumption and an increasing number of accompanying vehicles.[39] As the previous chapter has shown, by the early 1950s, many officers had written articles on the perceived vulnerability of conventional divisions to modern weapons, not least the atomic bomb. In March 1951, the Army Council concluded that much of the administrative tail of both the armoured and infantry divisions could be docked through a greater reliance on trailers and the introduction of a 10-ton truck, a reduction in the scales of reserve material that would be carried in to battle, and through the elimination of certain vehicles without replacement. It was hoped that this would affect a reduction of 590 and 440 vehicles in the armoured and infantry divisions respectively.[40]

The most pressing question concerned with the re-organisation of the armoured division was whether the current organisation of 'threes' was suitable for the types of operations envisioned by military planners. Since the armoured division would be mounting continuous counter-attacks within the general defensive plan, it needed to possess a sufficient strength of tanks to enable it to deal effectively with comparable opposition. If the tank power of the armoured division was not sufficient then counter-attack operations would become protracted, with obvious dangers. Comparisons with Russian formations revealed that the 'threes' organisation possessed too great an inferiority in tanks compared with its Russian counterpart to be acceptable. It was therefore proposed that the soundest organisation for the armoured division would be an armoured brigade of four armoured regiments and a divisional regiment drawn from the Royal Armoured Corps. This would give near equality in armoured fighting vehicles to the Russian tank division (216 British and 250 Russian respectively) and would

[39] TNA, WO 32/13858, 20/Misc/3074(SD5), Organisation of the Armoured Division, 10 January 1951.
[40] TNA, WO 163/114, ECAC/P(51)21(Revise), Reductions in transport: Armoured and Infantry Divisions, 12 March 1951.

provide an appropriate balance between fighting power on one hand, and mobility and flexibility on the other.[41]

A number of manoeuvres conducted throughout 1951 tested the manoeuvrability of the British Army in high-tempo ground combat. Between 12 and 16 September 1951, the British Army of the Rhine and 2nd Tactical Air Force joint exercise COUNTER THRUST exercised 1 Corps in mobile operations on wide fronts against superior enemy land and air forces on the plains of Northern Germany. Summing up at a conference held after the exercise, General Sir John Harding stated that there were two main ways in which armoured formations could be employed during a mobile defence. The first was to position a mass of armour in a secure position and force the enemy to attack at a disadvantage. After the attack had lost momentum, the armour could launch a decisive counter-attack against the enemy flanks. The second was to hold or check the enemy advance and then unleash a mass of armour in conjunction with other arms against the enemy position. Harding indicated that the armoured divisions of the Rhine Army were being trained in both of these techniques whilst stressing the need to concentrate armour and not waste it by committing it in penny-packets. The biggest problem hindering the use of such techniques in war was that the divisions were losing its mobility because there was too much transport on the road. Indeed, the Army appeared to be reaching the stage 'when there is so much transport that divisions cannot move at all'. Transport establishments would therefore have to be reduced and vehicle loads examined.[42]

Consequently, a few weeks later in England, SURPRISE PACKET exercised 6 Armoured Division and 3 Infantry Division as part of a corps in mobile operations, with particular emphasis on 'speed in decision and manoeuvre and the development of offensive opportunism'.[43] The Chief Umpire's report was tepid, however. In the early stages of the

[41] TNA, WO 32/13858, Memorandum on the Organisation of the Armoured Division, n.d. [c. January 1951].
[42] TNA, WO 231/63, Joint Exercise Counter Thrust – Final Report (Army), November 1951. See, in addition, TNA, WO 32/13858, Commander-in-Chief Eastern Command to Under-Secretary of State, 18 February 1952.
[43] TNA, WO 231/65, Exercise Surprise Packet – Instructions for Spectators and Press, 1951.

exercise, manoeuvre was handicapped by lack of information and insufficient reconnaissance, and offensive opportunism was generally 'dormant'. Although the 'Fantasian'[44] opposition enjoyed a five to one aircraft superiority, as could be expected in a real war against the Soviet Union, there were still unreasonably high 'casualties' sustained from air attack. In part, this was due to a lack of air consciousness from the troops – such as a failure to practice basic anti-air drills and camouflage techniques – but also because of the extremely high vehicle density on the roads. Furthermore, the technique for passing a formation rapidly over a water obstacle, which military theorists had predicted would hold a high premium in nuclear war, was still not understood, especially where armoured formations were concerned.[45]

The main lessons that were derived from both COUNTER THRUST and SURPRISE PACKET with regards to the handling of troops were that the bunching up of transport would be most dangerous in light of the increased air threat and that when confronted by superior enemy forces, armoured divisions required some form of obstacle to canalise the enemy strength.[46] Commenting on the land forces manoeuvres over the last year, the Supreme Allied Commander Europe, General Dwight D. Eisenhower, reinforced the requirement to indoctrinate all ranks in the practice of camouflage, road discipline, and passive air defence. He also championed armour as the 'weapon of decision' and urged commanders to use it as such.[47]

The types of exercises conducted by the British Army during the immediate post-war years, therefore, were geared towards conventional war-fighting in that very little atomic play had been brought into use. This was reflected in the Army's doctrinal pamphlets, which still

[44] The Fantasian armed forces were modelled on the Russian Army. The doctrine, organisation, and equipment of the Fantasian armed forces were revised habitually by the Director of Military Intelligence so that they were kept in line with the latest information on the Red Army. The Fantasian army was the standard opposition for the various exercises, manoeuvres, and war-games throughout this period. For further information see, TNA, WO 231/86, 138/668/52/MI3(d), Notes on the Fantasian Armed Forces, 18 December 1952.
[45] TNA, WO 231/68, Exercise Surprise Packet – Report by Chief Umpire, 18 October 1951.
[46] TNA, WO 231/69, Exercise Surprise Packet – Lessons Learned, 1951.
[47] TNA, WO 216/476, Comments on 1951 Manoeuvres – Land Forces, 27 December 1951.

advocated a style of warfare that would have been familiar to soldiers who had fought during the Second World War. The Army was more concerned with increasing its tactical mobility, especially in the armoured divisions, which stemmed from the realisation that in a future war enemy airpower would be powerful and ubiquitous. Only one exercise, SPEARHEAD in 1947, simulated the use of the atomic bomb, but this was against beachheads and ports during an amphibious landing. There was little attempt to explore the tactical use of nuclear weapons in the context of fluid operations in the field. The War Office had begun, however, to look at how the atomic bomb could be employed in a set-piece defensive battle. In a future war in Central Europe, the British Army of the Rhine expected to fight on terrain that was dominated by a number of large rivers against an attacking enemy that held a considerable numerical superiority. This geographical framework shaped the Army's thinking about the potential uses of tactical nuclear weapons in a future war, the legacy of which continued into the 1950s.

Towards a Doctrine for Nuclear Warfare

At the beginning of the 1950s, the Army's written doctrine still remained wedded to ideas of conventional war-fighting since thinking about nuclear warfare was still in its infancy, in part because of a lack of empirical information on which to base assessments. In the preface to the 1950 doctrinal pamphlet, *The Conduct of War*, Field Marshal Slim, the Chief of the Imperial General Staff, wrote that although weapons and methods of war were changing constantly, the basic principles of war remained the same.[48] It went on to warn that although the lessons of the past were important, it was essential to guard against the danger of letting past experience carry too much weight.[49] David French has shown that this doctrine was far from outmoded or stagnant and that it contained far greater elements of manoeuvrist thinking than has previously

[48] War Office, *The Conduct of War* (London: War Office, 1950), p. ii.
[49] Ibid., p. 3.

been suggested.[50] Indeed, as has been shown in the previous chapter, the Army had begun to focus during the late 1940s on the problem of how to increase mobility and flexibility (in part, but not wholly influenced by the arrival of weapons of mass destruction), and *The Conduct of War* was an extension of this reassessment. Reflecting a greater awareness of manoeuvre based operations, the pamphlet stressed that the 'higher commander who can prevent the enemy from moving and who possesses mobility himself will always be successful' and that an army with high mobility would always beat one that was based on numerical superiority.[51] It also advocated a manoeuvre approach to the conduct of offensive operations, which would enable battles to be won in less time and with fewer casualties:

> The enemy will be defeated with greater ease if he can be attacked on a flank or if a mobile force strong in armour can be loosed against his rear. The battle must therefore never be allowed to become or remain static. It will always be the aim of the commander to keep the battle open and to gain scope for manoeuvre.[52]

This approach was also taken, to a lesser extent, in the other doctrinal pamphlets produced during the same period. For example, *The Infantry Division in Battle* (1950) reaffirmed the importance of the 'tidy' battlefield and the requirement to destroy the enemy through 'hard and prolonged fighting'.[53] However, it also urged commanders to take risks, exploit success with vigour, and abandon the more methodical methods to achieve decisive results, especially during the 'break-out' battle.[54] Likewise, the 1952 companion to *Infantry Division*, which dealt with armoured forces, described the unique characteristics of armoured divisions as being that of mobility, flexibility, and hitting power.[55] It warned that the armoured division would lose much of its power if deployed in a static supporting role and that 'so long as a higher

[50] David French, *Army, Empire, and Cold War: The British Army and Military Policy, 1945-1971* (Oxford: Oxford University Press, 2012), p. 85.
[51] War Office, *The Conduct of War*, p. 12.
[52] Ibid., p. 17.
[53] War Office, *The Infantry Division in Battle* (London: War Office, 1950), pp. 21-22.
[54] Ibid., p. 45.
[55] War Office, *The Armoured Division in Battle* (London: War Office, 1952), pp. 10-11.

commander can keep his mass of armoured firepower mobile on the battlefield, so long will he hold the advantage'.[56]

The matter of Army doctrine was discussed in detail at the Generals' Convention at Warminster in April 1952. With regards to the tactical doctrine laid down in *The Infantry Division in Battle*, Lieutenant General Gale said that it was concerned with a specific tactical problem, and should not be read as official doctrine. Gale stressed that what was required was a flexible tactical doctrine that could be adapted to various local situations since it was impossible to predict with complete accuracy how each particular battle would play out.[57] Field Marshal Slim concluded the discussion by warning against the possession of too rigid a doctrine. He reminded his commanders that the British Army was still liable to be sent to all sorts of 'funny places' and that it would be unwise to produce a doctrine that was first-class for operations in Central Europe but was unsuited to desert or jungle warfare.[58] Here can be seen the perennial problem with the British Army's relationship with official doctrine. Although a large proportion of the Army was located in Germany, deterring an easy Soviet land advance across the intra-German border, such was Britain's global security commitments that the Army could conceivably be called upon to serve in a diverse number of locations. The result was that some in the Army high command were reluctant to focus too heavily on producing a doctrine for a particular military environment.

The 1950s were different, however, in that the British Army of the Rhine did have a clearly defined enemy in Central Europe and an assigned operational role as the backbone of Northern Army Group. Yet, a lack of detailed information on the effects of atomic weapons presented a challenge to doctrine writers. For example, when Sir Frederick Brundrett, the Deputy Scientific Advisor to the Ministry of Defence, attended a staff conference in Germany with the British

[56] Ibid., p. 12.
[57] TNA, WO 216/778, Generals Convention at Warminster, verbatim reports: Item 1, Tactical Doctrine – Defence, April 1952.
[58] Ibid.

Army of the Rhine and the 2nd Tactical Air Force in the spring of 1952, he did not like what he saw. Brundrett wrote to the Vice Chief of the Imperial General Staff, Lieut.-Gen. Sir Nevil Brownjohn, that he had been rather disturbed to find that the attitude towards atomic warfare 'appeared to be so restrictive that even the mention of the word atomic was regarded as rather insecure'. Brundrett explained that in a future Continental war, BAOR would be fighting alongside the Americans, who would certainly be using the atomic bomb in a tactical role on the battlefield. That being the case, he suggested that it was of the upmost importance to get the Chiefs of Staff to agree to instigate some kind of special training in atomic warfare and to publish some information on the subject at a much lower level than had hitherto been permitted. Brundrett highlighted that books on atomic warfare were already freely available to purchase from bookshops, and that the services were lagging behind in disseminating information throughout their ranks.[59]

Brownjohn discussed the issue briefly with the Commander-in-Chief of the British Army of the Rhine, Sir John Harding, who thought it premature to think about the problem in too much detail at the time.[60] After further discussions, however, it was decided that there should be a joint Army/Air Force exercise in 1953 to consider the tactical use of nuclear weapons in the air/land battle. Interestingly, Brownjohn predicted that the introduction of tactical nuclear weapons into Army inventories would not mitigate the necessity of providing strong land forces, nor would it allow the reduction of ground forces in Western Europe for the foreseeable future.[61] Brownjohn wrote back to the Deputy Scientific Advisor stating that passive defensive measures against atom bomb attack were being studied and that a training pamphlet would be

[59] TNA, WO 216/644, Brundrett to Brownjohn, 27 June 1952.
[60] TNA, WO 216/644, Vice Chief of the Imperial General Staff to Deputy Chief of the Imperial General Staff, 28 June 1952.
[61] TNA, WO 216/644, Vice Chief of the Imperial General Staff to DSA, 14 July 1952.

published very soon. He also explained the decision to hold an inter-service training exercise in 1953 which he hoped would result in 'a firm tactical doctrine and more realistic training'.[62]

That exercise, FOR AND ON, took place in August 1953 and resulted in a report being issued to senior commanders on the tactical use of the atomic bomb, providing the first real insight into the battlefield use of those weapons. The report began by describing the technical characteristics of atomic weapons, the physical effects of heat, blast, and radiation, and methods of delivery. It then moved on to tactical considerations. It stated that atomic weapons allotted for tactical use might be used against enemy tactical airfields, battlefield interdiction, or in close support of ground troops. The priority of these tasks would be dictated by availability and on the conditions of the battle at the time. During the attack, the aim would be:

> To make full use of the destructive and morale effects of the weapon to bring about conditions in which decisive exploitation will be possible, while at the same time avoiding the presentation of a profitable target to the enemy's atomic weapons.[63]

In order to exploit the shock effects of atomic weapon use, the troops allotted to this exploitation role would have to follow-up the bombardment as quickly as possible. Because of the wide ranging effects of atomic weapons, and in order to present a less profitable target for enemy atomic weapons, the troops would be deployed well back from the initial burst. They must, therefore, be capable of rapid cross-country movement. On the defence, the atomic bomb would be used to break up the enemy attack, either in preparation or execution. The defensive layout must aim at being sufficiently dispersed so as not to invite atomic destruction, but not so dispersed as to be easily defeated by conventional tactics; possess sufficient depth to absorb a deep penetration; and maintain mobile reserves to seal-off and destroy penetrations and to make local counter-attacks. The most difficult problem would be deciding what level of dispersion would be necessary to avoid crippling losses from atomic attack, whilst retaining

[62] TNA, WO 216/644, Brownjohn to Brundrett, 1 August 1952.
[63] TNA, WO 216/841, 43/Exercises/205(MT 10), The Tactical Use of Atomic Weapons, 25 August 1953.

sufficient strength on important tactical features to avoid being overcome through conventional tactical methods.[64]

The first large-scale manoeuvre to simulate the nuclear land battle was the NATO-wide exercise BATTLE ROYAL of September 1954, described by BAOR C-in-C General Gale as a 'new look' exercise.[65] It was the largest military exercise to be conducted in Germany since the end of the war and involved 140,000 American, Canadian, Dutch, Belgian, and British troops. The tactical concept was based on the accepted principle that a future land war against the Soviet Union would begin with an all-out enemy atomic offensive and that the first few months would see the Allies fight a battle for survival. In this opening phase, the task of the British Army of the Rhine and its sister formations in Northern Army Group would be to resist invasion by holding ground vital to the Allied Air Forces, thereby facilitating the delivery of SACEUR's counter air offensive. The exercise was designed so that an initial invasion by superior forces could be channelled and slowed down by obstacle belts and 'stubborn' infantry formations. An armoured counter-attack, in conjunction with airborne troops and fully supported by atomic artillery, was planned to take place on ground of the defenders choosing. The main object of the defence was not to hold ground *per se*, but to inflict up to 30% casualties on the attacker, and 'tactics would be based on the atomic factor and not merely a number of divisions assisted by atomic missiles'.[66]

There were a number of problems during BATTLE ROYAL with regards to realism and authentication, and simulating atomic strikes proved to be a novel and challenging exercise for the umpires.[67] For example, the official report by NATO's Military Committee concluded that

[64] Ibid.
[65] NATO, CR(54)35, Meeting of the North Atlantic Council, 24 September 1954.
[66] TNA, WO 231/97, Exercise Battle Royal – Planning and Narrative, 24 May 1954.
[67] The methods for umpiring an atomic strike were developed specially for Battle Royal. For the original directive see, TNA, WO 231/99, Exercise Battle Royal – Directive on Atomic Umpiring, September 1954. Personal thoughts of the Exercise from the Chief Umpire can be found in, LHCMA, Pyman Papers, PYMAN 9/9, Notes to Director from Chief Umpire – Tactical Lessons, n.d. [c. October 1954].

the simulation of air combat war was entirely false, enemy representation was not realistic as to tactics, numbers, and organisation, and the effect of tactical airpower on the land battle could not be accurately assessed.[68] Nonetheless, the Army was able to extract a number of helpful 'lessons' that informed thinking about the atomic battlefield.[69] Addressing British and Canadian officers after the exercise Field Marshal Sir John Harding, who had succeeded Slim as Chief of the Imperial General Staff, said that he was pleased with the progress that had been made in the general standard of training throughout the British Army of the Rhine, particularly in driving, maintenance of communications, concealment, and dispersion. Harding reinforced the traditional functions of land forces arguing that vital ground would still have to be contested through 'hard and bitter fighting'. He stressed that on the atomic battlefield this could only be achieved through an improvement in tactical mobility and flexibility and urged commanders to study the problem realistically, objectively, and dispassionately. The solution to this problem would be vital to the future fighting efficiency of the Army. The CIGS believed that this could not be solved by 'tinkering or pruning but only by major changes in outlook, in method, and in organisation'.[70]

After a short delay because of complications in providing a scientific appendix, the Army's first training pamphlet for atomic warfare was finally released in October 1954.[71] *Notes on Atomic Warfare* represented the most thorough assessment yet by the Army on the tactical application of nuclear weapons. However, as stated in its introduction, these notes were only meant to provide a background for future training and study. Greater knowledge of recent scientific developments and further atomic training exercises were required before 'correct organisations can be fixed or firm doctrine on future tactics, possibly involving considerable

[68] NATO, MC 43/3 (Final), NATO Exercise, 1955, 16 August 1956.
[69] For a detailed breakdown of the lessons learned during the exercise see, TNA, WO 231/95, Exercise Battle Royal – Final Report, December 1954.
[70] TNA, WO 231/95, Exercise Battle Royal – Address by CIGS to British and Canadian Army Officers, n.d. [c. October 1954].
[71] TNA, WO 231/95, BM/404(MT 10), Brigadier J. A. W. Ballard to Major General B. Daunt, 14 October 1954.

changes in techniques, laid down'.[72] It stated that at the outbreak of total war, it must be accepted that atomic weapons would be freely available to both sides and would be limited only by the cost and effort required to replace them. Atomic missiles would be tailored for the intended target and range in yield from between 5kt and 20kt. It reinforced the notion that whatever character a future war adopted, land battles and campaigns would still be a struggle for ground and, echoing Field Marshal Harding, victory would only be won 'after hard and bitter fighting'. Both sides would still have to defend or seize important terrain features such as airfield complexes and their associated radar systems, ports and coastlines, missile sites, and industrial areas and sources of raw materials. Therefore:

> To do this there will always be ground that must be held or gained, and ground that is in dispute can only be held or gained by fighting for it. It is with this fighting that these notes are concerned.[73]

Thus, *Notes on Atomic Warfare* was still concerned with traditional land operations. Indeed, it was described in great length how the principles of war as enunciated in *Conduct of War* remained the same in the atomic era. The main difference from conventional war-fighting was simply one of the scales of firepower that was now made available to commanders in the field. During offensive operations, the lengthy preparations of elaborate fire plans that had been necessary before an attack during the Second World War could now be avoided. This would result in increased tactical efficiency and a saving of manpower, vehicles, road space, and, most importantly, time.[74] During defensive operations, the primary concern of the defence was to lure the attacker into concentrating in space so as to provide a profitable target for atomic attack whilst ensuring that it was sufficiently dispersed so as not to invite atomic annihilation itself. The attacker would probably attempt to avoid this error by making deep penetrations into the defensive position before decisive atomic action could be taken. Therefore the defensive layout

[72] War Office, *Notes on Atomic Warfare* (London: War Office, 1954), p. 3.
[73] Ibid., p. 3.
[74] Ibid., p. 12.

would have to be arranged in great depth in order to absorb such penetrations in addition to maintaining a mobile reserve to plug any gaps in the sector and to counter-attack successful enemy breakthroughs. Ultimately, the great benefit that was bestowed upon atomic missiles when used defensively was that they would allow a numerically weaker force to hold its ground against a stronger enemy and exact such crippling losses on the attacker that it would be able to switch rapidly from defence to offence at a pace that would not have been possible using conventional weapons alone.[75]

Although it was becoming clear to Army planners that conventional tactics and techniques would require an overhaul for the atomic battlefield, official Army publications still took a cautious line. The Army's *Notes and Information on Training Matters*, which were prepared under the auspices of the Director-General of Military Training and published habitually, bore this mark. The March 1955 edition directed its readers to various sources of information on atomic warfare and encouraged officers to 'keep themselves abreast of informed opinion and original thought' by reading military literature. It provided a list of relevant service publications such as the *British Army Annual*, the *Army Quarterly*, and the *Journal of the RUSI*, and it also advertised essay writing competitions and the publication of new books on atomic matters.[76] The next edition of *Notes*, which was published six months later, stated that although questions relating to nuclear warfare was the subject of much thought and discussion in the Army, it is 'important to ensure that the whole subject is kept in a proper perspective'.[77] It warned against the risk that thinking about future war might obscure the vital task of training for war with the weapons that were then available since 'changes are likely to take place slowly, as a study of military history will show; the process is one of evolution rather than revolution'.[78]

[75] Ibid., p. 13.
[76] War Office, *Notes and Information on Training Matters: Number 10* (Surrey: War Office, 1955), pp. 13-15.
[77] War Office, *Notes and Information on Training Matters: Number 11* (Surrey: War Office, 1955), p. 6.
[78] Ibid., p. 7.

However, the October 1956 *Notes and Information on Training Matters* reflected a subtle change in tone when discussing nuclear weapons. Like its predecessor, it directed readers to relevant literature on nuclear warfare and encouraged officers to peruse the shelves of staff college libraries.[79] Significantly, it also promoted to its readers the idea that tactical nuclear weapons were becoming increasingly conventionalised, perhaps reflecting changing Alliance postures, stating explicitly that 'nuclear weapons must be considered as normal weapons at the disposal of a higher commander in the event of total war'.[80] That being the case, it outlined that the training priorities for the Army would be to improve camouflage and deception techniques; to dig more deeply and quickly; and be able to disperse and concentrate more quickly.[81] The following training pamphlet highlighted the extreme physical strain that would be placed on soldiers under nuclear conditions and suggested that special steps be taken to ensure that troops possessed the necessary physical endurance to operate in such abnormal conditions. They included the ability to:

> Cover long distances across country on foot at fair speed, then to fight and dig in at the end of it; to overcome obstacles such as rivers, demolitions, hills; to continue enduring with little sleep.[82]

Although it was difficult, if not impossible to train men for the mental challenges of operating on a nuclear battlefield, the Army was clearly becoming aware of some of the challenges that it may face in the future in preparing its men physically for the challenges of tactical nuclear warfare.

Thus, as the 1950s progressed, military exercises continued to inform official thinking about nuclear land combat and by 1955 the Army had moved closer to the development of an official doctrine for nuclear war-fighting. *Notes on Atomic Warfare* represented the clearest

[79] War Office, *Notes and Information on Training Matters: No. 13* (Surrey: War Office, 1956), pp. 11-12.
[80] Ibid., p. 16.
[81] Ibid., p. 17.
[82] War Office, *Notes and Information on Training Matters: No. 14* (Surrey: War Office, 1957), p. 5.

promulgation yet of how the Army envisaged a nuclear land war and how it intended to fight it. However, as *Notes* and other exercises illustrated, the intellectual reference points for thinking about the tactical application of nuclear weapons were traditional concepts of conventional military operations; nuclear weapons were almost grafted on to existing ways of thinking. As the 1950s progressed, however, operational research would play an increasingly important role in examining land combat under nuclear conditions and the results that were gained from these examinations had a tangible effect on Army doctrine and force composition.

Nuclear Weapons and Operational Research

Beginning in 1955, the Army Operational Research Group (AORG) embarked on a number of studies to examine the operational use of atomic weapons. AORG was the first operational research group to be formally constituted in the United Kingdom. The forerunners of the organisation were a group of scientists employed during the opening stages of the Second World War to investigate early warning radar and anti-aircraft defences. Over the course of the war, the group expanded and its terms of reference widened. By 1948 they had merged with other groups to form the Army Operational Research Group working under the auspices of the War Office.[83] The group's focus in the late 1940s was on mechanised warfare and other conventional war-fighting problems, and it had a limited interest in the implications of nuclear weapons on ground combat. What interest it did have in weapons of mass destruction during this period was the effects that they might have if used against port facilities, North Atlantic convoys, and the implications of home defence against airborne nuclear projectiles.[84] By the middle 1950s, however, NATOs nuclear posture in Central Europe and the arrival of small-

[83] G. Neville Gadsby, 'The Army Operational Research Establishment', *The Operational Research Society*, Vol. 16, No. 1 (March 1965), pp. 5-6.
[84] Maurice Kirby and Matthew Godwin, 'Operational Research as Counterfactual History: A Retrospective Analysis of the Use of Battlefield Nuclear Weapons in the German Invasion of France and Flanders, May-June 1940', *The Journal of Strategic Studies*, Vol. 31, No. 4 (August 2008), pp. 636-637.

yield nuclear weapons for battlefield use encouraged AORG to begin detailed investigations into the impact that nuclear weapons have on the conduct of land warfare.

The first of the AORG studies examined the use of atomic weapons in offensive and defensive operations against the background of actual combat missions that were conducted during the Second World War. As the previous chapter has shown, military thinkers had informally began to think in this way, but now the operational history of the war was being studied scientifically in order to inform thinking about the future atomic battlefield. The first of these two investigations studied the use of atomic weapons in eleven set-piece offensive operations conducted in North West Europe during 1944/45 where a large bombing effort had been required in support of land forces.[85] AORG reporters concluded that where heavy bombing had been used in direct support of the set-piece offensive operations studied, atomic weapons could have feasibly been used to replace it, and might have been much more effective in neutralising the target area, resulting in fewer casualties being suffered by friendly troops. Although in all of the operations studied atomic weapons could have been used to replace heavy bombing in support of the original plan, the writers of the report suggested that this might not necessarily have been their best use. They suggested that given sufficient quantities and the means of delivering them, atomic weapons could have been used to roll together the 'break-in' the 'dog-fight' and the 'break-out' phases of battle into one operation – the 'break-through' – and to make the objectives as deep as possible 'limited only by physical obstacles or by considerations of flank security'.[86]

This implied, therefore, that atomic weapons could facilitate high-tempo mobile operations. The second investigation looked at the use of atomic weapons in critical defensive situations.

[85] TNA, WO 291/1498, Army Operational Research Group, Report No. 5/55: The Use of Atomic Weapons in Support of Set-Piece Offensive Operations, May 1955, pp. 1-2. The eleven operations included the capture of three ports, and one amphibious operation. They were operations: CHARNWOOD, GOODWOOD, COBRA, BLUECOAT, TOTALISE, TRACTABLE, VERITABLE, ASTONIA, WELLHIT, UNDERGO, and INFATUATE.
[86] Ibid., p. 32.

It employed as the tactical background the German campaign in France and Flanders during 1940 and sought to examine how the Allied use of atomic weapons might have affected the campaign.[87] It simulated the tactical use of nuclear weapons to destroy bridges over which German forces advanced, battlefield interdiction, and in a counter-attack role against German troop concentrations. The study confirmed the long-held assumption that natural obstacles such as river lines would play an important role in the nuclear land battle, not least because such a physical feature would act as a clear demarcation line between the opposing forces beyond which commanders could safely order nuclear strikes without the uncertainty that friendly troops might be affected.[88] Nuclear weapons could also be used effectively to isolate the battlefield through the destruction of important towns and communication nodes. However, because of the quantity of bombs required to effectively retard the movement of enemy reinforcements, supplies, and material, civilian casualties would be extremely high, with the political ramifications that that would bring about.[89] Ultimately, the dilemma facing the attacker was that if it wanted to defeat the defender, it had to move, if it had to move then troops could not dig-in, if troops could not dig-in then serious casualties could be expected in the face of nuclear attack. Thus, the defender had to choose carefully when to move and when to dig. The equally delicate problem facing the defender was whether to use nuclear weapons against an attacker that was on the move when it is unprotected but dispersed and difficult to locate, or to employ a nuclear strike when the attacker has stopped moving but is probably greater protected.[90]

As a result of these operational research studies and manoeuvres that had been carried out in the preceding years, the Deputy Chief of the Imperial General Staff, General Sir Dudley

[87] TNA, WO 291/1502, Army Operational Research Group, Report No. 11/55: The Possible Use of Atomic Weapons in Critical Defensive Situations, November 1955, p. 1.
[88] Ibid., p. 7.
[89] Ibid., pp. 9, 16.
[90] Ibid., p. 12.

Ward, urged the Army Council in January 1956 to approve a new organisation for the fighting units of the infantry division and to a new trial organisation for the armoured division. Akin to the debates of 1950-51, the DCIGS stressed that the present organisation of the infantry and armoured divisions did not meet the requirements of tactical nuclear warfare, a point that had been proven through trials in BAOR over previous years, and brought to the fore in the 1955 logistical study exercise APRIL FOOL.[91] He proposed that the infantry division increase its tank and artillery support to enable it to hit harder and to operate dispersed over wide fronts as would be required in nuclear warfare. There was also a need to simplify the number and types of weapons in the infantry battalion. Ward proposed the addition of three armoured regiments and a medium artillery regiment since this would allow many of the support weapons which complicated the battalion to be removed. With regards to the armoured division, what was required was a smaller more compact formation that combined mobility and hitting power. Again, the problem was that the current organisation was too large and unwieldy, the main cause of which was the number of soft-skinned vehicles in the size of the administrative tail. He made suggestions for a new streamlined division and urged that it be the subject of further trials. In both the infantry and armoured divisions, the emphasis of the proposed organisations was mobility, flexibility, and the ability to apply sustained combat power.[92]

A month later, Ward outlined the Army's vision for new divisional structures to his NATO counterparts during multi-lateral discussions on defence planning. Ward stressed that although global war was looming, it must be remembered that the British Army may be called upon to move quickly to fight in a wide variety of places, and to operate under very different conditions. For those reasons, the basic divisional structure must be suited for this general purpose role. In global war, where nuclear weapons would be used from the outset, Ward warned that the Army

[91] TNA, WO 231/100, Exercise April Fool – Final Report, April 1955.
[92] TNA, WO 163/641, AC/P(56)1, Reorganisation of the Division: A New Outline Organisation for the Armoured and Infantry Division, 14 January 1956.

would not be successful in offensive or defensive operations unless it was able to switch smoothly without confusion between concentration and dispersal. Akin to his paper submitted to the Army Council in January, Ward argued that this would not be possible unless the Army freed itself from the masses of vehicles it had thought were necessary at the end of the Second World War through ruthlessly cutting maintenance and logistical support units. The DCIGS said that the new organisations that were being developed were an air-transportable infantry division based on three infantry brigades of three infantry battalions with integrated armour and artillery, and a tank heavy armoured division with minimum infantry support and self-propelled artillery.[93] Ward believed that the infantry division based on such a design would be sound for the conduct of modern war but that the new look armoured division would still need work because of complications surrounding the introduction of atomic weapons; while the infantry division was designed for general purpose use, the armoured division was designed from the ground up as a formation for use in nuclear combat.[94]

What emerged from this examination was a new organisational concept designed for nuclear combat – the brigade group. The tactical background against which this reorganisation took place mirrored that which AORG researchers had constructed as a result of the data obtained from war-games and other studies. Ground forces would be subservient to nuclear weapons whose role would be to facilitate the most effective use of nuclear firepower. Because of the sheer weight of nuclear firepower that would be expended in the tactical battle, formations would be deployed in great depth and dispersed across a wide front. Since individual formations would often become isolated from higher formations they needed to be self-contained, capable of sustaining independent combat operations, and possess high levels

[93] NATO, AC/100-VR/3, Defence Planning – Multilateral Discussions, Army Divisional Organization, 22 February 1956.
[94] NATO, AC/100(WG-1)R/1, Defence Planning – Multilateral Discussions, Military Working Group on Points Arising from Item C, 24 February 1956.

of tactical mobility and flexibility.[95] The brigade group was designed from the ground up to meet these conditions. It was administratively self-contained with its overall command structure being vested in the headquarters of a higher formation. Interposed between these two formations would be a major-general's headquarters that would command two or more brigade groups but having no administrative capacity.[96]

The Army high command worried that the divisional structure – with its organic supporting and administrative units and command structure – was so familiar that there would be a mental reluctance to accept the brigade group as the basic self-contained unit. Therefore, the War Office asked BAOR and all overseas command to consider the proposals.[97] On 26 August 1957, Sir Richard Powell, Permanent Under-Secretary at the Ministry of Defence, wrote to John Hare M.P. informing him that professional opinion in the Army was formally in favour of adopting the brigade group concept as the basic formation of the Army of the future, a view shared by the Army Council. He stressed that the brigade group concept would be particularly suited to BAOR because it could be mobilised much more rapidly than the old-style divisions ever could. He proposed that the Minister of Defence be properly informed so that he could put the matter to the Defence Committee for ratification.[98]

The Army devised three different types of brigade group organisations that reflected the three basic missions that planners thought it might be asked to perform – internal security, limited war, and global war. For internal security duties the brigade group consisted of an infantry brigade complete with administrative support. Limited war brigade groups were composed of all-arms infantry and armoured formations but, due to a scarcity of manpower, lacked the necessary administrative backing. In the event of a limited war, they would be reinforced in this area by the Territorial Army. Brigade groups in BAOR were designed for

[95] TNA, DEFE 7/1682, The Brigade Group as the Basic Fighting Formation, n.d. [c. 1957].
[96] TNA, WO 163/634, AC/P(57)18, The Brigade Group Concept, 20 March 1957.
[97] TNA, DEFE 7/1682, Brigade Group Organisation, 25 July 1957.
[98] TNA, DEFE 7/1682, Powell to Hare, 26 August 1957.

global war and contained the full panoply of all-arms formations. The infantry brigade groups were organised as three infantry battalions, and armoured regiment, and a field artillery regiment. The armoured brigade groups consisted of three armoured regiments, an infantry battalion, and a regiment of self-propelled guns. Divisions did not disappear completely in BAOR, but they now only performed the role of a command headquarters that controlled two or more brigade groups.[99]

At the same time as organisational transformation was in process, AORG and other research groups, such as the British Army of the Rhine's Operational Research Section, conducted further studies on the technical characteristics and effects of nuclear weapons. These were as varied as the examination of the protective value offered by slit trenches against nuclear explosions to troops in the field;[100] the cause and effects of retinal burns and flash blindness;[101] the impact of nuclear weapon use upon forests in Germany;[102] optimum burst heights of nuclear weapons;[103] estimates of mortality rates sustained from nuclear attack;[104] the possible uses of prepositioned nuclear weapons in North West Europe (strategic demolitions);[105] and the value of the live indoctrination of troops at nuclear weapon trials.[106] The data gained from these assessments meant that the Army finally had an empirical base upon which further analysis of the atomic battlefield could progress. The lack of detailed scientific knowledge on the technical

[99] French, *Army, Empire, and Cold War*, pp. 204-205.
[100] TNA, WO 291/1503, Army Operational Research Group, Report No. 12/55: The Protective Value to Personnel of Slit Trenches Against the Thermal and Gamma Radiation Effects of Nuclear Explosions, December 1955.
[101] TNA, WO 291/1512, Army Operational Research Group, Report No. 8/56: Visual Incapacity Following Exposure to a Nuclear Explosion – Part I, Chorioretinal Burns, September 1956; TNA, WO 291/1515, Army Operational Research Group, Report No. 11/56: Visual Incapacity Following Exposure to a Nuclear Explosion – Part II, Flash Blindness, September 1956.
[102] TNA, WO 291/1628, Operational Research Section BAOR, Report No. 3/56: The Effects of Atomic Weapons on Forests in North West Europe, March 1957.
[103] TNA, WO 291/1519, Army Operational Research Group, Report No. 2/57: Optimum Burst Heights in the Tactical Use of Nuclear Weapons, March 1957.
[104] TNA, WO 291/1523, Army Operational Research Group, Report No. 6/57: An Estimate of Mortality Rates as a Result of Nuclear Weapon Attacks in the Field and an Analysis of Wound Types Amongst Surviving Casualties, June 1957.
[105] TNA, WO 291/1630, Operational Research Section BAOR, Report No. 4/57: The Use of Prepositioned Nuclear Weapons in Selected Sites in North West Europe, July 1957.
[106] TNA, WO 291/1526, Army Operational Research Group, Report No. 9/57: The Value of Live Indoctrination at a Nuclear Weapon Trial (Operation Buffalo), November 1957.

characteristics of nuclear weapons had hitherto resulted in unrealistic or unsound simulation of nuclear weapon employment in manoeuvres and exercise and, therefore, restricted the development of a coherent doctrine for nuclear war. With the treasure trove of information provided by the operational research groups, however, the Army now possessed greater insight into the nuclear battlefield and could move closer towards the development of a new war-fighting doctrine.

In the summer of 1956, researchers at AORG introduced a new war-game that had been designed as a tool to investigating some of the more complex problems arising out of the tactical application of nuclear weapons on the battlefield. Its creators believed the medium of war-gaming to be one of the most convenient and economic means for an experimental approach to this type of investigation.[107] It was hoped that the results gained from war-gaming would allow certain problems to be studied, which fell in to three broad categories: tactics and organisations e.g., what is the best use of nuclear weapons in certain tactical situations such as set piece attacks, withdrawals, and the defence of major obstacles? Is it better to use nuclear weapons for interdiction or to inflict casualties? What is the optimum balance between armour, artillery, and infantry? Weapons and equipment e.g., what are the desirable ranges for supporting weapons? What family of nuclear weapons is required for the land battle? Intelligence e.g., how does the value of intelligence vary with the time delay in acquisition and with accuracy?[108] The game was designed to be played at the Corps/Army level and was set in Northern Germany where two sides opposed one another. The Red side was organised and equipped in accordance with the latest information on the Russian Army, and the Blue side mirrored that of the British Army of the Rhine.

[107] TNA, WO 291/2281, Army Operational Research Group, Occasional Note No. 10: AORG Tactical War Game, August 1956, p. 1. For a discussion on the positive and negative aspects of war-gaming as a tool for operational research see, R. W. Shephard, 'War Gaming as a Technique in the Study of Operational Research Problems', *The Operational Research Society*, Vol. 14, No. 2 (June 1963), pp. 119-130.
[108] WO 291/2281, AORG Tactical War Game, p. 3.

After a year of play, AORG published its first report in December 1957. It stated unequivocally that with the introduction of nuclear weapons to the land battle, new tactical concepts and organisations would be demanded. However, it noted that one of the first significant points to emerge was that the future pattern of land war would be dictated by how many nuclear weapons were made available. If there were only a few nuclear weapons made available to field commanders, operations in attack and defence would be of a conventional nature, with nuclear weapons merely playing the role of more powerful forms of conventional fire support. With a plentiful supply of nuclear weapons the pattern would change, and nuclear firepower would become the dominant factor. The role of conventional ground forces would then be to create and maintain the conditions needed to facilitate the most effective employment of nuclear firepower.[109]

If the land battle reached this critical nuclear phase, either gradually or from the outset, then another trend of considerable significance was identified by AORG researchers. As the nuclear potential of each side increased, it was found that pitched battles of a conventional nature decreased until it reached a stage where very few, if any, conventional engagements occurred. The reasons for this were clear. If the defender possessed enough nuclear weapons, it would seek to hold the attacker at a distance and destroy its forces by nuclear firepower without becoming locked in a potentially costly conventional battle. Likewise, the attacker would no longer be forced to attack enemy strong-points with conventional forces and could simply use nuclear weapons to destroy any opposing forces that occupied the ground it wished to capture or pass over. The conclusion drawn from this was that the strength of opposing forces would no longer be measured in terms of the size of the ground force, but by its nuclear potential.[110] This had obvious, and advantageous, implications for a ground force that was numerically

[109] TNA, WO 291/2213, Army Operational Research Group, Memorandum No. H.15: The Land Battle in Nuclear Warfare A Discussion of Tactical and Other General Trends, December 1957, p. 2.
[110] Ibid., p. 3.

inferior to its opponent. The report therefore concluded that if operational planning was to be based on the sustained use of nuclear weapons in the land battle then the implications of that decision must be accepted and the necessary tactical and organisational changes be made. If this did not happen then 'the Army will find itself at a grave disadvantage if nuclear war is thrust upon it'.[111]

The work conducted by the Army Operational Research Group during the middle 1950s played an important role in informing service thinking about the future nuclear battlefield. The decision to adopt a new organisation based on the brigade group was perhaps the clearest indication of the Army's attempts at organisational adaptation for the nuclear battlefield. Army doctrine also began to reflect a change in the Army's conceptual approach to the conduct of future operations. The years since the publication in 1954 of *Notes on Atomic Warfare* allowed the Army more time to study and think about nuclear operations and in 1958 the War Office published its first army-wide official doctrine for nuclear war, and constituted a clear evolution of previous thought. It covered a five year period and assumed that the Army would have its own nuclear artillery and that most, if not all, of the infantry would be mounted in armoured personnel carriers. In line with previous conceptions of fighting a defensive battle under nuclear conditions, the pamphlet envisaged the British Army of the Rhine holding a major obstacle so as to canalise a Soviet advance where it could then be subjected to nuclear fires and then counter-attack by mobile armoured forces.[112] This doctrine was to stay with the Army well into the 1960s.

[111] Ibid., p. 17.
[112] War Office, *The Corps Tactical Battle in Nuclear War* (London: War Office, 1958).

Conclusions

The organisation and doctrine of the British Army changed considerably as a result of the nuclear revolution. By the end of the 1950s, it possessed both army-wide and region-specific doctrine for nuclear warfare and had adopted the brigade group over the division as the basic fighting formation in the field. This transformation was an organic process that evolved gradually and was shaped by a myriad of external influences. In the immediate years after 1945, one of the most constraining factors was the lack of detailed information on the technical characteristics of the atomic bomb. This made it difficult to examine with accuracy how those weapons might affect the future conduct of warfare. Furthermore, there was a presumption that the nuclear weapons then in production by the United States were too expensive and powerful to be wasted on tactical targets on the battlefield and would therefore only be employed against strategic targets away from the battlefield. The Army recognised, however, that the atomic bomb might be employed profitably against ports and beachheads, and this was reflected in early exercises such as Montgomery's Staff College exercise SPEARHEAD in 1947.

As information on nuclear weapons became more readily available in the early 1950s, the Army could begin to assess the implications of their use in land warfare. Operational research, therefore, became of great importance in analysing the battlefield use of nuclear weapons and how organisations and doctrine might be affected. The studies conducted by the Army Operational Research Group indicated where conventional doctrine might need to be adapted and also showed that current organisations based on the divisional structure would be required to change. Like many of the unofficial doctrine writers who published articles in service periodicals, operational history became an important facet in official Army research into the atomic battlefield. Studies of the major land campaigns of the Second World War provided valuable information on how nuclear weapons could be employed alongside conventional ground forces. Small yield nuclear weapons were also becoming available during this period,

quelling any doubts that they would be employed tactically in a future ground war against the Soviet Union in Europe. Therefore, military manoeuvres and exercises were conducted under nuclear conditions, and these too helped to pave the way for doctrinal and organisational change.

By 1958 the Army had a written doctrine for nuclear war and reorganised on the brigade group concept. In part, this was possible because there existed for the first time in the Army's history a specific military problem. Although the Army still had to perform a number of overseas security missions against a diverse enemy, in terms of high-intensity war-fighting, there was only one potential enemy – the Soviet Union. Army planners studied Red Army combat techniques and doctrine and were able to make informed judgements about Soviet war aims and likely ground operations in a future war. Furthermore, since a sizeable part of the Army was located permanently in Central Europe, Rhine Army commanders could study the ground upon which it would be asked to defend in the event of a hot war. This had clear benefits when thinking about future operations and encouraged the development of a doctrine outlining how it intended to fight the nuclear land battle.

Conclusions

Through an examination of British thinking about tactical nuclear weapons, from both a political and military perspective, this thesis has contributed to our understanding on three distinct, yet interrelated, elements of peacetime military planning and defence policy-making in Britain between the years 1945 to 1957. In so doing, the thesis has provided new insights into these important aspects of British defence policy after 1945, which have sadly been lacking from the existing historical literature. Furthermore, by placing tactical nuclear weapons as the referent object of analysis, it has been possible to make hitherto unexplored connections as to how national defence policies and strategic preferences fed into wider alliance concerns and the impact that this has on individual service planning in peacetime. It has shown how the civilian leadership conceptualised tactical nuclear weapons within broader nuclear strategy, how NATO operational designs for the use of tactical nuclear weapons tied the British Army of the Rhine to concepts with which British defence policy-makers were ambivalent, and the intellectual and practical challenges that were forced upon the Army as a result of these policies. The conclusions drawn from the analysis of these three themes are described below.

British Defence Policy and Tactical Nuclear Weapons

The official view of tactical nuclear weapons, as enunciated by the civilian leadership, was that they were conceptually no different to strategic nuclear weapons in that their use would signal a clear escalation in hostilities towards inevitable thermonuclear war. Suggestions that government might draw distinctions in peacetime between the tactical and strategic use of nuclear weapons were strangled at birth. The British government's intransigence on nuclear strategy was displayed during the great strategic debates of the 1950s, when state departments were inundated with calls from abroad and within its own defence establishment to review its

policy of ‘Massive Retaliation’. Proponents of ‘Graduated Deterrence’, or those who championed limited nuclear responses to aggression, argued that the government’s policy of massive nuclear retaliation was too inflexible to deal with the full spectrum of threats that the nation might be confronted with in a changing security environment, which could range from limited border clashes or internal subversion to full-scale attacks with conventional forces. In the case of the former, supporters of the military utility of tactical nuclear weapons warned that the Soviet Union might call bluff on Britain’s resolve to trigger thermonuclear war, thereby striping away the credibility of the strategic deterrent.

Even pressure from Britain’s ‘special’ partner, the United States, to draw distinctions in peacetime between the tactical and strategic use of nuclear weapons floundered in the face of Whitehall stubbornness on the issue. Since the Eisenhower administration’s New Look at defence policy, American spokesmen embarked on a public campaign to promote tactical nuclear weapons as being armaments that could safely be employed in the context of ‘conventional’ warfare without unnecessary collateral damage to friendly civilian populations or the risk of escalation to strategic nuclear warfare. There were clear benefits from such a policy as far as Washington was concerned since tactical nuclear weapons appeared to offer a technological solution to some of the military and economic dilemmas of national defence policy. Primarily, tactical nuclear weapons had the potential to become cheap substitutes for expensive conventional forces. It was hoped that by deploying tactical nuclear forces to Europe, a reduction of manpower-intensive conventional divisions would follow. A corollary of this was that tactical nuclear weapons would act as force multipliers to compensate for a lack of American boots on the ground and thereby counter-balance Soviet numerical superiority.

However, the Cabinet, the Foreign Office, and the Chiefs of Staff remained wedded to their view that it would be unwise to make statements in peacetime to the effect that certain weapons would be used only in certain circumstances. Their logic was that in attempting to categories

tactical nuclear weapons as being less drastic than strategic nuclear weapons, and therefore of practical use for meaningful military operations, the deterrent value of those weapons would be undermined. While the United States wished to conventionalise tactical nuclear weapons, both in the minds of the public and its military leaders, so that its forces in Germany could exploit the awesome battlefield firepower that they would provide, Britain opposed any concept that would nullify in the mind of a potential aggressor the true horrors of nuclear warfare – it was the appalling consequences of thermonuclear warfare that, in Slessorian language, was the 'great deterrent' to aggression. Furthermore, it was fear of the unknown which British defence planners believed inserted an added element of risk in the calculations of a potential adversary; by refusing to make clear which weapons would be used under which circumstance it was hoped that this would strengthen the deterrent effect of nuclear weapons.

For British policy-makers, therefore, there was a clear delineation between conventional and nuclear warfare. In the European theatre, tactical nuclear weapon use was intimately and inextricably linked to the use of strategic nuclear weapons. All strategic and operational planning for the eventuality of hot war on the Continent dictated that if Western Europe was assaulted from the East, the Allied bomber forces would be unleashed immediately against the Soviet homeland. In such a war, which might be over in a matter of weeks, the role of nuclear armed ground forces was simply to fight a delaying action to keep the Red Army as far to the East as possible. This was not only to prevent the Soviet's from achieving a *fait accompli* in Western Europe, but to protect and hold navigational aids and communication nodes which were essential if the Strategic Air Command and Bomber Command were to deliver the *coup de grace* against the Soviet Union. Deterrence, not defence, was the cornerstone of British defence policy and tactical nuclear weapons were seen merely to be another layer to the all-important strategic nuclear deterrent

That the U.S. could envision a limited nuclear war in Europe and Britain could not was a reflection of the different strategic stakes involved: the United States could risk instigating a tactical nuclear war in Europe in the hope that this would spare continental America from reprisal with Soviet strategic nuclear weapons; whereas for the United Kingdom, this was a high-risk strategy since the security of the home islands was interwoven with that of continental Europe – if Western Europe fell then this would place her in a vulnerable position. Consequently, any act of aggression in Europe, however limited, had to be met with the full weight of allied fighting power. This logic is further illustrated by the fact that British planners conceded that tactical nuclear weapons could be used in theatres on the periphery of Europe, such as South East Asia, without fear of escalation to the use of strategic nuclear weapons because that region was not seen as vital to the survival of Britain or the Soviet Union. In Europe, however, Britain and other European nations hoped that the use of tactical nuclear weapons would initiate a strategic nuclear exchange between the Superpowers, saving Europe from the horrors of a prolonged limited war fought with tactical nuclear weapons.

This is not to say that Britain did not exploit the political capital provided by the deployment of American tactical nuclear weapons in Europe. One of the most important aspects of the 1957 Sandys defence review was its promise to reduce the strength of the British Army of the Rhine by replacing its conventional manpower with tactical nuclear weapons. However, as Martin Navias has demonstrated, there was not a strong correlation between the reduction of BAOR and the deployment of tactical nuclear weapons in Europe.[113] This further illustrates that the Ministry of Defence under Sandys valued tactical nuclear weapons more for their deterrent rather than war-fighting properties. What rationales Sandys did have for supporting the deployment of tactical nuclear weapons in Europe can be seen as political rather than military.

[113] Martin S. Navias, *Nuclear Weapons and British Strategic Planning, 1955-1958* (Oxford: Clarendon Press, 1991), p. 231.

Britain needed to assure its NATO allies in 1957 that a reduction of its conventional forces in Europe was not a signal that it was beginning to waver over its commitment to provide forces for the defence of Germany. Therefore, with the contraction of BAOR, the acceptance of the deployment of American tactical nuclear weapons on the European Central Front had become something of a political necessity for Britain.

NATO, BAOR, and Tactical Nuclear Weapons

Britain acquiesced to US leadership on nuclear issues within the NATO alliance and simply paid lip-service to SACEUR's operational concepts for NATO first-use of nuclear weapons to arrest a Soviet land offensive, without thinking clearly as to how this would affect its land forces deployed on the Central Front. Whether the civilian leadership accepted that tactical nuclear weapons could became a meaningful tool of military power or not was a moot point; the British Army of the Rhine, along with its sister formations in Northern Army Group, had little choice but to prepare for the eventuality of nuclear land combat despite the political strings that were attached to their use. The result was an awkward conundrum whereby the Army had to prepare for a military contingency, by developing new capabilities and overhauling existing training regimes, operational methods, tactical doctrine, and organisations, against a background of government ambivalence to its attempts at adaptation. This retarded the ability of the Army to secure from its civilian masters the resources it believed were needed to transform itself effectively for tactical nuclear warfare. As an erstwhile SACLANT planner put it, the concept of fighting a nuclear war was 'inherently incoherent' but the services had to strive nonetheless to develop contingency plans for this 'surreal mission'.[114]

[114] Cited in Beatrice Heuser, *The Evolution of Strategy: Thinking War from Antiquity to the Present* (Cambridge: Cambridge University Press, 2010), p. 269.

For example, Britain did not possess its own tactical nuclear weapons until the early 1960s, and had to rely on the United States for the provision of those weapons during the 1950s. Since BAOR had operating procedures forced upon it which were reliant on nuclear firepower, the Army explored understandably the possibility of acquiring its own family of tactical nuclear weapons. Not only would this help with training and indoctrinating troops in preparation for the atomic battlefield, it would also allow greater freedom of use in the event of aggression without British commanders having to embark on a lengthy and potentially disastrous process of authorisation with their American counterparts. The Army's political leaders did not share the service's enthusiasm for indigenous tactical nuclear weapons, however. Fiscal stringency and a defence policy focused on nuclear deterrence meant that the priority of British nuclear weapons research and development was in strategic armaments. Britain simply did not have the financial resources to invest in a weapon system which it believed to be strategically superfluous and of little military value. Consequently, although the Rhine Army knew that the battlefield of the future would be in a nuclear environment, it could not draw upon its own hardware to fight such a war.

BAOR was also thrust uncertainly into the adoption of a nuclear theme because it was acting not as a unitary entity, but as one of many cogs in the NATO machine. This meant that to a large extent its operational plans were constrained by the dictates of alliance strategy and, by extension, politics. The job of articulating the overarching defensive concepts within which BAOR would operate in wartime fell to the Supreme Allied Commander Europe and his staff at Supreme Headquarters Allied Powers Europe. From 1954 SHAPE planners were working on the premise that NATO ground forces would be forced to employ nuclear weapons from the outset if they had any chance of preventing the rapid overrunning of Europe by the mass of Soviet conventional forces. Attempts to build-up sufficient levels of conventional forces to match the Soviet Union in manpower failed consistently for fiscal reasons and tactical nuclear

weapons were exploited by SHAPE planners as force multipliers in lieu of conventional manpower. The role of nuclear armed ground forces in Europe was never considered in isolation by NATO planners, however, but always in the context of wider operational plans, central to which were the strategic bombing campaigns of the Allied air forces.

That NATO ground forces were expected to fight with tactical nuclear weapons had a major impact on the operational plans on BAOR, despite what officials in Whitehall believed to be the true value of those weapons. For commanders on the ground, concepts of the land battle had to be overhauled to accommodate the use of battlefield weapons of unprecedented power. The integration of tactical nuclear weapons with conventional ground forces meant that the traditional means by which armies moved and fought on the battlefield would have to be reconceptualised against the backdrop of nuclear weapon use. This led to operational concepts that were radically different from the types of operations that had been conducted during the great land campaigns of the Second World War, in which many senior commanders had participated. The notion of these ground forces as being merely a brittle and immobile shield that would shatter at first contact with the enemy, thus triggering the nuclear strike plans of the allied air forces, is misleading. Rather, the role of NATO ground forces on the European Central Front was to buffer the thrust of a Soviet offensive with a mobile defence that employed nuclear firepower to break-up and defeat advancing columns of armoured forces, all the while trading space for time in order to facilitate the nuclear strike plans of NATO air forces.

These considerations forced top-down change on the force structure and internal organisation of BAOR. BAOR commanders and military chiefs throughout the 1950s had little choice but to muddle through in the true British tradition and extract as much combat capability as they could from dwindling resources. A result of this was that military planners searched for force multipliers as a means to compensate for lacklustre conventional forces and hopefully nullify the Soviet's numerical advantage. This became particularly acute in the late 1950s with

the reduction of Rhine Army manpower in the wake of the 1957 defence review. It was tactical nuclear weapons towards which BAOR commanders looked in the hope of solving the military dilemma on the Central Front – the very weapon system which British civilian leaders claimed publicly allowed a reduction in conventional forces but in private showed nothing but disdain towards their military utility. Thus, while British defence ministers flaunted tactical nuclear weapons as a modern, cheap alternative to providing defence in a changing world, for the British Army of the Rhine, they literally provided the only hope that they could stave off a determined Soviet attack. Since there was little interest in government circles in the conceptual and practical challenges of preparing the Army for nuclear combat, despite allowing it to be forced upon the service, the Army was left to its own devices with little support.

In this context BAOR became the ultimate experimental nuclear army. Despite a lack of direction by the political leadership, its commanders proved to be receptive to the new philosophy of modern warfare that was then beginning to be developed at SHAPE. For example, General Richard N. Gale, who commanded BAOR between 1952 and 1957, was quick to acknowledge the effect that tactical nuclear weapons might have on the modern battlefield and planned to fight a highly mobile action reminiscent of the German *blitzkrieg* technique rather than the methodical approach to war-fighting that is often attached to the British Army of the Second World War. In part this was because he lacked the manpower to mount a static defence across the wide frontages of the Northern Army Groups sector, but was also a reflection of the need to remain mobile and flexible under the threat of atomic attack. Further down the chain of command, corps commanders planned to conduct set-piece tactical engagements which exploited the power of the atom. General Sir Harold Pyman, who commanded 1 (British) Corps, sought to use his infantry brigade groups to fix an attacker on river lines where it would then be hit with nuclear firepower and counter-attacked with mobile armoured forces.

Such operations bore the mark of conventional war-fighting techniques: natural and artificial obstacles would be exploited to hamper the attacks of an enemy; armoured forces would be used for deep penetrations against the rear and flanks of an enemy; and infantry would still be required to seize and hold important terrain features. However, the difference from conventional land warfare was that on the nuclear battlefield ground forces became subservient to their supporting nuclear firepower. All operations were geared towards creating opportunities to employ tactical nuclear strikes in the most effective manner. The manoeuvring of troops in the field was not a means to the traditional end of positioning them so that they could attack the opposition directly with small-arms fire, but was so that they could create conditions where a decisive blow with nuclear firepower might be possible. In attempting to conceptualise the conduct of operations in a nuclear environment BAOR commanders were able to draw upon the vast amount of intellectual energy expended by the wider officer corps in its attempts to solve some of the imponderables of nuclear land combat.

The Theory and Practice of Tactical Nuclear Warfare

The officer corps of the post-war British Army displayed great intellectual capacity in its attempts to envisage the challenges of fighting on a nuclear battlefield. As early as 1945, the major professional journals of the service featured articles exploring future concepts of nuclear war-fighting, and by the late 1950s there was a great proliferation of articles relating to the nuclear battlefield. Personnel belonging to the many branches of the Army contributed to the emerging theory of tactical nuclear warfare which represented different service specialisms and roles. The intellectual reference points for thinking about the future character of land warfare were equally varied: from trench warfare on the Western Front during the First World War, to the mobile armoured actions of the opening stages of the Second World War. In this context, Army theorising about tactical nuclear warfare contributed to the wider professional debates of

the period about the merits of attrition and manoeuvre warfare, mobility and mechanisation, and the restructuring of tactical formations. The Army high command encouraged such debate, and this is reflected by the sheer depth and breadth of writings about nuclear combat.

The boom years for writing and thinking about the nuclear battlefield came in the middle 1950s. There are a number of explanations for this: first, during the second half of the 1950s nuclear weapons were viewed as being weapons for strategic use against centres of population and industry – the bombs were rare, expensive, and cumbersome objects that could only be delivered to their targets by heavy bombers. The battlefield use of nuclear weapons in a tactical role was therefore not considered to be likely or practical for many years to come; second, Army officers possessed little detailed information on the technical characteristics of nuclear weapons. The effects of properties like radiation, for example, were not well understood, and this made it difficult to assess with any accuracy how nuclear weapon use might influence the tactical battle; third, it was not until the early 1950s that small yield nuclear weapons and their delivery vehicles reached operational status. Thus, when technological developments made possible the tactical application of nuclear weapons, there was a surge in interest from professional soldiers; finally, the marriage of tactical nuclear weapons with conventional forces in the context of the NATO New Approach in 1954 forced Army officers to examine the effects of nuclear weapon use in the land campaigns in which they would be expected to participate in a future war.

Many of the articles written by serving officers were polemic in tone. The advent of nuclear weapons sparked much debate on the future of armies in the nuclear era, and many commentators even went as far as to say that ground forces of the traditional nature would have only a minor role in future conflicts, and may even become obsolete. Thus, for many officers, service journals became a platform upon which they promoted the continued existence of the service during a time when only nuclear weapons appeared to matter, and challenged the notion

that land warfare would cease to have any meaningful military benefits in the nuclear age. In this context, thinking about the atomic battlefield was not simply an academic exercise, as many officers were spurred on because of a vested interest in maintaining the health and vitality of their profession. There was even greater incentive to promote the Army as being modern and relevant in the nuclear era because of the cuts that were being made to defence budgets by Conservative governments throughout the 1950s. Chiefs of the General Staff fought continually throughout this period to secure for the Army a fair share of a dwindling defence budget. This insecure bureaucratic environment, characterised by inter-service rivalries and competition, left its mark on the writings of atomic theorists.

A number of key themes emerged as a result of this critical thinking about tactical nuclear warfare. The basic problem was one of solving the dilemma of how armies would fight and survive in a battlefield environment characterised by ubiquitous nuclear firepower of unprecedented destructive power. Unsurprisingly, therefore, protection against atomic attack became central to writings about tactical nuclear warfare. On this there were two distinct schools of thought. One maintained that high levels of battlefield mobility would provide the antidote to vulnerability from atomic attack since units would be able to traverse the battlefield quickly, thereby circumventing the effects of nuclear firepower. This school of thought was championed predominantly by tankers, who maintained that armoured forces would play an increasingly important role in modern warfare because of the properties of speed and protection inherent in armoured vehicles. The other broad school of thought was advanced mainly by those in the technical arms of the service, such as engineers, and by infantrymen. It posited that any kind of movement on a battlefield dominated by nuclear firepower would be impossible and that the survival of ground forces would rest in greater static protection in trenches and earthworks. Just as the Army as a whole was promoting itself as relevant in the nuclear age, so

too internally were the different branches of the service arguing that they, and not their rivals, would become the most important specialisation in a coming nuclear conflict.

The Army drew on this theory to underpin its written doctrine. Moreover, it supplemented this intellectual stimulation with other methods. First and foremost the Army was dedicated to extracting lessons from the past in order to inform thinking about future warfare. After the fighting of the Second World War came to an end, and the Soviet Union was slowly emerging as the only real military threat to the United Kingdom, the War Office became increasingly interested in examining the combat techniques, doctrine, and organisation of the Red Army. Many methods were employed in order to secure reliable information. The first was by drawing on the rich war-time experiences of Britain's allies, such as Canada and the United States, and from its erstwhile enemy, Germany. From the second half of the 1940s, the Army studied German reports from fighting the Red Army on the Eastern front. Army planners were particularly interested in mobile armoured warfare and how Soviet formations reacted to German blitzkrieg methods. The preoccupation by Army planners of how the Red Army performed in such engagements shows that, as far as future continental warfare was concerned, the Army was considering the prosecution of highly mobile manoeuvre based operations.

Operational research also became of great importance to the Army and was instrumental in identifying many operational capability priorities for the service going into the 1950s. The Army Operational Research Group exploited much of the research that had been gathered from studying Soviet methods of war-fighting, and this allowed for the modelling of a realistic 'enemy' for use in studies. Again, this shows that with a specific opponent in mind, and against the backdrop of a specific military scenario – how to defeat a Red Army offensive in Central Europe – it was possible to research in advance what types of capabilities the Army might require and the type of doctrine, tactics, and organisations that would be necessary in order to prevail on the battlefield. The AORG was also responsible for a number of technical studies

on nuclear weapons themselves in which they examined what yield of bombs would be required and what type of employment would be necessary in certain situations. This went a long way to providing the Army with empirical date on which further experimentation could be based. With such information it became possible to simulate nuclear weapons use in scenarios with which officers would have been familiar. For example, the studies which assessed the likely effects of nuclear weapons in the land campaigns of the opening stages of the Second World War provided a revealing insight into the nuclear battlefield in an operational context which was well understood by Army planners.

Perhaps one of the most progressive developments to emerge out of Army operational research was the development in 1957 by AORG of a tactical nuclear war-game. This provided a rare opportunity for corps commanders to study in detail the planning and execution of a tactical battle involving the application of nuclear weapons. War-gaming has a long tradition in European military cultures, but it was a fine achievement that AORG planners were able to simulate with any accuracy how such revolutionary weapons as nuclear weapons might influence ground combat. The results gained from war-gaming a tactical nuclear battle resulted in the extraction of some revealing conclusions with regards to tactical nuclear warfare. For example, a key realisation was that up until a certain number of tactical nuclear weapons were in use by either side, land operations would be reminiscent of the Second World War and would most likely progress in the traditional manner. However, when a certain threshold had been passed and both sides were in plentiful supply of nuclear weapons, there would be a radical change to the nature of battle. During this phase, which may begin at the start of hostilities or evolve gradually, nuclear weapons would become the dominant factor on the battlefield. Hitherto, heavy weapons supported the troops, who would carry the fight to the enemy and would prove the decisive factor in the outcome of battle; on the battlefield of atomic plenty the reverse was true and the troops supported the weapon.

The British Army ended the 1950s with both a written doctrine for nuclear land combat and a new divisional structure, the brigade group. The intellectual capacity for adaptation shown by the officer corps, evidenced by the sheer volume of writings on atomic land combat, demonstrates that the service was responsive to changes in the military environment in which it operated. Practically, the Army designed and implemented war-games to test theoretical concepts, and conducted military exercises to assess the performance of men and equipment executing new battlefield techniques. Underpinned by sound operational research, these experiments paved the way for tangible changes in doctrine and organisation. The result was that the post-war British Army was largely successful in adapting *intellectually* for the challenges of fighting with tactical nuclear weapons in a future land war. Innovations in doctrine and organisation were not revolutionary, however, but may be described as evolutionary. This is because of the relative time lag involved – the metamorphosis from a 'conventional' to a 'nuclear' outlook took ten years, from 1947 to 1957 – and that the Army's written doctrine still bore the mark of conventional war-fighting techniques. The Army was attached to the idea that the general principles of land combat still remained the same in nuclear war as they had been in conventional land combat. Thus, the Army's nuclear doctrine would have been familiar to officers who had fought in the great land campaigns of the Second World War – terrain would still have to be fought over, armour and infantry would still remain the backbone of combat power, and the basic tenants of fire and manoeuvre remained the same. So too was the brigade group an evolution in the divisional structure, which had been in constant evolution for 200 years.

The only difference in nuclear land combat was that a greater emphasis was placed on certain aspects of doctrine and organisation over others to compensate for the greater lethality of firepower. For example, in the doctrinal sphere, terrain would be held either through 'domination' by mobile groups operating in the vicinity of the area or firmly entrenched

infantry; formations would contain a greater proportion of armoured units; and there would be a greater emphasis placed on speed of movement than hitherto. Likewise, the brigade group concept was reminiscent of other divisional organisations only that it had evolved in a manner which lightened the administrative tail so that it was more suited to the nuclear battlefield. Therefore, these developments, while still firmly rooted in the historical experience were, nonetheless, clear signs of adaptation by the post-war Army. It is impossible to judge whether the Army was 'successful' in its transformation or whether its visions of future nuclear land combat were 'correct' since it was never called upon to fight the war for which it had prepared. Critics might argue that the nuclear prophets possessed a blurred vision of the future that did little to prepare the service for the types of conflicts it was eventually called upon to fight during the twentieth century. Yet, this should not detract from what was an extremely progressive, intellectually sharp, and adaptive post-war British Army.

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